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Role of Previous Experience on Pre-Service Physical Educators' Confidence in Teaching Individuals with Disabilities: Mediation Analysis

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Abstract

This study aimed to examine relationships among the confidence of pre-service physical educators in teaching individuals with disabilities (IWDs), their previous experiences, and the quality of experiences and to test if the relationship between the quality of previous experiences and confidence in working with IWDs is mediated by the previous experiences. A total of 150 pre-service teachers completed a questionnaire. Significant relationships were found between previous experiences and the quality of such experiences (r = .70, p < .001), previous experiences and confidence (r = .50, p < .001) and the quality of previous experiences and confidence (r = .35, p < .001). The regression analysis indicated that the quality of previous experiences was a significant predictor of confidence, β = .35, F(1, 148) = 20.19, p < .001. The quality of previous experiences was related to previous experiences, β = .70, F(1, 148) = 142.76, p < .001. Previous experiences was associated with confidence, β = .50, F(1, 148) = 50.18, p < .001. The results of the mediation analysis confirmed the mediating role of previous experiences in the relationship between the quality of previous experiences and confidence, β = .24 (CI = .15 to .33). After controlling for previous experiences, the direct effects of the quality of previous experiences on confidence became non-significant, β = –.01, t (147) = –.12, p = .904. Finally, the results of the bootstrapping test showed that the mediation model was significant, Z = 4.69, p < .001, κ^2 = .24.

Keywords: Pre-service physical educators, Confidence, Previous experience, Students with Disabilities.

Introduction

The pre-service stage is a foundational step toward a professional teaching career and a critical component of engagement with the profession (Fessler & Christensen, 1992). This stage may be the most influential factor in effective teaching performance for the rest of a teacher's occupational life, even though the teacher career cycle model maintains that many factors influence each stage of an educator's career. This argument was supported by some researchers, who indicated that teachers at the beginning year of employment have a firmly entrenched belief system that is difficult to change (Fessler & Christensen, 1992; Lynn, 2002; Woods & Lynn, 2001). Such belief system is constituted, for instance, by a teacher's negative experiences, memories, or feelings for another person or situation, which drive the teacher to exhibit unfavorable reactions to circumstances that are similar to those that fostered negativity (Fessler & Christensen, 1992).

Since the promulgation of the Individuals with Disabilities Education Act in 1990, many students with disabilities (SWDs) have been placed in mainstream classrooms (U.S. Government Accountability Office, 2010). In accordance with this ordinance, both adapted physical education (APE) and general physical education (GPE) teachers are expected to provide high-quality physical education services to SWDs. Transition toward this shift, however, has not been smooth over the past decades. Block (1999) reported that many GPE teachers are unprepared to accommodate SWDs in their GPE programs. The limited training and experience of GPE teachers in this regard also seem to affect their attitudes toward teaching such students (Jeong & Block, 2011). Many other researchers have consistently identified the insufficient training of GPE teachers as an impediment and underscored the importance of APE oriented training programs that are intended to enable GPE teachers to feel comfortable and competent in teaching SWDs (Hodge, Ammah, Casebolt, Lamaster & O'Sullivan, 2004; Jeong, 2014). Jeong (2013) emphasized that those training initiatives should be incorporated into physical education curricula in physical education teacher education (PETE) programs and the pre-service physical education teachers complete with practical experiences throughout curricula to improve the knowledge, competencies, and confidence in instructing SWDs.

According to Hodge, Murata, & Kozub (2002), pre-service physical education teachers may harbor negative perceptions of individuals with disabilities (IWDs) when they have not acquired practical work experiences with IWDs. The same issue holds among GPE teachers. Several studies

reported a positive link between the practicum experiences of pre-service physical education teachers and their behaviors, attitudes, and perceived competence (Hodge, Davis, Woodard, & Sherrill, 2002; Hodge, Tannehill, & Kluge, 2003; Jeong, 2013; Rizzo & Kirkendall, 1995). Researchers also found that pre-service physical education teachers who obtain positive previous practicum experiences in teaching IWDs and have high perceived competence show favorable attitudes toward the aforementioned learners (Rizzo & Kirkendall, 1995; Trip & Rizzo, 2006). These findings were supported by Jeong (2013), who demonstrated a strong relationship between pre-service physical education teachers' previous work experiences and their confidence in teaching IWDs during the practicum stage of their training.

Previous research indicated that pre-service practicum experiences expand content knowledge, develop positive attitudes toward IWDs, and enhance teachers' confidence levels (Hodge, Davis et al, 2002; Hodge et al, 2003; Jeong, 2013; Rizzo & Kirkendall, 1995). Despite the insights derived from these studies, however, limited efforts have been devoted to illuminating the effects of previous coursework and teaching experience on the confidence of pre-service physical educators in teaching IWDs before their introductory APE practicum course. An understanding of pre-APE experiences and confidence levels is essential to the provision of effective introductory APE courses and practicum experiences to pre-service physical educators who will be working with IWDs.

With consideration for the above-mentioned issues, this study was conducted to examine the confidence of pre-service physical educators to work with IWDs and the factors that are related to their confidence in instructing such learners in the practicum stage of their training. To this end, the following hypotheses were formulated:

1. The confidence of pre-service physical education teachers in teaching IWDs, their previous experiences, and the quality of such encounters are strongly related.
2. The relationship between the quality that characterizes previous experiences and confidence in working with IWDs is mediated by the previous experiences of pre-service physical education teachers in instructing IWDs.

Method:

Participants

A total of 150 pre-service physical education teachers (39% female and 61% male), selected via convenience sampling, consented to take part in the questionnaire survey. The pre-service physical education teachers were undergraduate students enrolled in introductory APE courses offered under the PETE programs of different universities in the northeastern, midwestern, and western regions of the United States. They were at their junior to senior levels

of study and agreed to participate in the survey before their practicum. This study was reviewed and approved by a university institutional review board, after which participant recruitment and data collection were initiated.

Instrument

The questionnaire developed by Jeong (2013) was modified to develop an instrument intended to examine the previous teaching experiences, confidence, and professional attributes of pre-service physical educators. The developed questionnaire consisted of 10 questions, distributed across the following sections: (a) a general section on professional attributes, such as certification for cardiopulmonary resuscitation (CPR), first aid training, athletic experiences, ability to communicate in sign language, and certification for swimming instruction; (b) a section on previous experiences in working with IWDs; (c) a section on the quality of previous experiences; and (d) a section devoted to the level of confidence in teaching IWDs. The respondents were asked to rate the questionnaire items using a five-point Likert scale.

Data Collection

The questionnaire was administered in two ways, namely, through the online platform Survey Monkey (www.surveymoney.com) and through onsite administration of self-report questionnaires at the pre-service physical education teachers' practicum sites. As previously stated, the questionnaire was conducted before the pre-service physical education teachers' practicum, which included teaching various physical activities and swimming programs to IWDs.

Data Analyses

Statistical analysis was performed using SPSS 24.0, and descriptive statistics was used to explain the data. Pearson correlation was employed to determine the correlations among the pre-service physical education teachers' previous experiences (amount of time spent teaching IWDs), the quality of their previous experiences, and their confidence levels in teaching IWDs. The Baron and Kenny (1986) method, which is an analytical strategy for verifying mediation hypotheses, was adopted to test the mediation model in the current work. Finally, bootstrapping was carried out to explore the significance of mediation effects. Indirect effects were tested using bootstrap estimation with 5000 samples to evaluate whether the quality of previous experiences affected the pre-service physical education teachers' confidence in teaching IWDs. The overall statistical significance of the model was set at .001.

Results:

With respect to experience, 65% of the pre-service physical education teachers have not taken classes related to APE or IWDs, 54% indicated little to no experience in working with IWDs, and 24% and 2% admitted to having very bad and bad previous experiences in working with IWDs, respectively. In terms of confidence, 20% reported little to no confidence in teaching IWDs. The results on professional attributes showed that the respondents had CPR certification (62%), first aid training (55%), athletic experiences at the university level (23%), the ability to communicate in sign language (7%), and certification for swimming instruction (9%). Among the pre-service physical education teachers, 32% expressed confidence in teaching aquatics to IWDs.

Significant and strong relationships were found between previous experiences and the quality of such experiences ($r = .70$, $p < .001$) and between previous experiences and confidence ($r = .50$, $p < .001$). A statistically significant and moderate relationship was found between the quality of previous experiences and confidence ($r = .35$, $p < .001$). The results on the correlation among confidence, previous experiences, and the quality of these experiences are summarized in Table 1.

Table 1. *Correlations among preservice educators' confidence, previous experiences and quality of previous experiences*

Variable	Mean	SD	1	2	3
1. Preservice educators' confidence	3.11	.998	1		
2. Previous experiences	2.39	1.134	.503**	1	
3. Quality of previous experiences	3.23	1.502	.346**	.701**	1

The results of the regression analysis indicated (see Table 2) that the quality of previous experiences was a significant predictor of the pre-service physical education teachers' confidence in working with IWDs, $\beta = .35$, $F(1, 148) = 20.19$, $p < .001$. The quality of previous experiences was positively related to previous experiences, $\beta = .70$,$F(1, 148) = 142.76$, $p < .001$. The findings also indicated that the mediator, previous experiences, was positively associated with confidence in working with IWDs, $\beta = .50$, $F(1, 148) = 50.18$, $p < .001$.

Given that both the a-path and b-path were significant (see figure 1), the mediation analysis was validated using the bootstrapping method with bias-corrected confidence estimates (MaeKienen, Loekwood, & Williams, 2004; Preacher & Hayes, 2004). The 95% confidence interval (CI) for the indirect effects was obtained via bootstrap resampling with 5000 iterations (Preacher & Hayes, 2008). The results of the mediation analysis confirmed

the mediating role of previous experiences in the relationship between the pre-service physical education teachers' quality of previous experiences and confidence in working with IWDs, β = .24 (CI = .15 to .33). After controlling for previous experiences, the direct effects of the quality of previous experiences on confidence in working with IWDs became non-significant, β = –.01, t (147) = –.12, *p* = .904. This finding suggested full mediation. Specifically, the mediating effect of the pre-service physical education teachers' experiences accounted for 96.6% of the variance in the pre-service teachers' confidence levels. Finally, the results of the bootstrapping test showed that the mediation model was significant, Z = 4.69, $p < .001$, $\kappa^2 = .24$.

Table 2. *Parameter Estimators in the full structural model*

Structural Relationships	β	SE (B)	*p*
DV = Preservice teachers' confidence			
$R^2 = .12$, $F(1, 148) = 20.19$, $p < .001$			
IV = Quality of previous experience	.35	.05	<.001
DV = Previous experiences			
$R^2 = .49$, $F(1, 148) = 142.76$, $p < .001$			
IV = Quality of previous experiences	.70	.04	< .001
DV = Preservice teachers' confidence			
$R^2 = .25$, $F(1, 148) = 50.18$, $p < .001$			
IV = Quality of previous experiences	.50	.06	< .001
DV = Pre-service teachers' confidence			
$R^2 = .25$, $F(2, 147) = 24.93$, $p < .001$			
IV: Quality of previous experiences	-.01	.07	= .904
IV: Previous experiences	.51	.09	< .001

Discussion

This study examined the relationship among pre-service physical education teachers' confidence in teaching IWDs, their previous experiences

in this regard, and the quality of such experiences. The research also inquired into the role and effects of the pre-service physical education teachers' previous experiences, as a mediator, on their confidence in teaching IWDs.

The most important result was that the pre-service physical education teachers who had positive experiences (quality of experience) reported strong confidence in working with IWDs during their practicum. In addition, the result showed the significant association between previous IWD-related work experiences and confidence in working with IWDs. The higher the quality of such experiences and the greater the time spent in working with IWDs (previous experiences), the higher the confidence level of the pre-service physical education teachers before the commencement of the practicum stage. This result is consistent with previous studies which showed that pre-service physical educators who had previous experiences in working with SWDs exhibited significantly more favorable attitudes than did those with limited or no experience (Block & Rizzo, 1995; Folsom-Meek, Nearing, Groteluschen, & Krampf, 1999; Hodge & Jansma, 1999).

The results of the mediation model showed that the quality of previous experiences was directly related to previous work experiences and that such experiences were directly associated with the pre-service physical education teachers' confidence. In other words, a chain of influence was evident, with the quality of work experiences affecting such experiences, which in turn, influenced teacher confidence. This chain indicated that both the quality of experiences and the time devoted to them are important predictors of pre-service physical education teachers' confidence. In addition, having positive work experiences may be essential motivators of pre-service physical education teachers to increasingly work with IWDs and exhibit more favorable attitudes toward them. The chain of influence also suggested that pre-service physical education teachers' first experience in working with IWDs could be enjoyable and meaningful, thereby inspiring educators to work with IWDs and eventually developing the confidence to carry out such work. In relation to these findings, Hodge et al. (2003) and Kozub & Lienert (2003) reported that coursework and practicum experiences have extensively been demonstrated as the primary mediating factors in attitudinal change among pre-service physical education teachers with respect to instructing IWDs.

This research provided interesting results, but its limitations are also worth discussing. First, the question related to previous work experience with IWDs did not specify context; some of the participants may have been prompted to restrict their responses to teaching IWDs in physical education settings, whereas the others may have interpreted this as extending to any work experience involving IWDs. Second, the research looked into the overall quality of previous experiences/work was not defined how the pre-service physical education teachers to respond; some pre-service physical education

teachers might respond their overall satisfaction on their previous experience. Future studies should specify different previous experiences and their quality to uncover more detailed information on pre-service physical educators' experiences in working with IWDs. Researchers can also direct attention to the importance of the practicum stage in enhancing pre-service physical education teachers' confidence and how corresponding experiences affect their confidence in being effective teachers in the future.

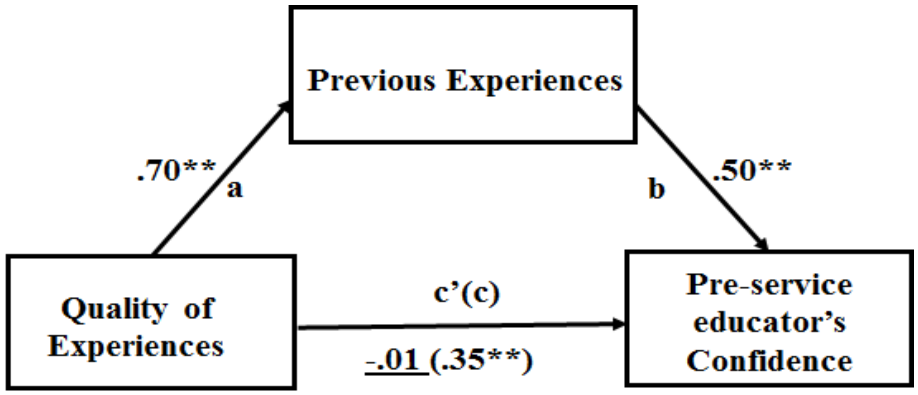

Figure 1. Indirect effect of quality of previous experiences on pre-service physical education teachers' confidence through amount of previous experiences.
Note: *p < .01, **p < .001

Conclusion

The results of this study indicated that greater exposure to IWDs instruction would increase pre-service physical education teachers' confidence in teaching SWDs. The mediation model revealed that the pre-service physical education teachers who had positive experiences with IWDs were more engaged in their work with such IWDs and that previous work experiences and their quality increased their confidence in their ability to teach IWDs. PETE programs should be proactive in identifying the effective ways to train highly confident and competent future professionals by addressing the various experiences with IWDs and confidence levels of pre-service physical educators during their APE practicum.

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The Effect of the Relationship to Knowledge of Physical Education Teachers on the Ostensive Forms in Swimming

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Abstract

This article is interesting in ostensive forms of two physical education (PE) teachers within the activity of Swimming in Tunisia. Its objective is to analyze the ostensive forms of PE teachers and to extricate their effects on the relationship to knowledge. The methodology of the research is qualitative. It subscribes in the field of didactic clinical interactions of PE and on the clinical analysis of teaching practice of an experimented and a novice teacher in order to glimpse « case by case » the singular subject (Terrisse, 1999). Data collection and analysis subscribe in the constructed temporality in one time of professorial action. The test (Terrisse, 2000) relies on the knowledge ostension scale (Robert, 2012; Salin, 2002). Results put in evidence that PE teachers use ostensive forms to influent the relationship to knowledge in Swimming.

Keywords: Ostension, physical education teachers, relationship to knowledge, clinical didactics, swimming.

Introduction

Many researches of Mathematics didactics went around ostension, but few of them (Carnus, 2008; Robert, 2012; Robert & Carnus, 2013) have studied ostension on the framework of PE didactics. This article offers to study the *combined* ostension in swimming like a professional gesture (Sghaier, Ben Jomâa, Mami & Bouassida, 2016), when highlights PE teachers relationship to knowledge.

In PE, some works (Zimmerman 1976; Pujade-Renaud, 1977; Vigarello & Vives 1986; Gal-Petitfaux, 2000) stroke the role of the verbal, as it is the principal support of teaching. However, so many authors (Quintillan, 1992; Kohler, 1998) sustain professor action in their studies notably in PE activities where the relationship between teacher and students involves the body. In this context, teaching situations where teachers introduce the knowledge more or less directly to the pupils are qualified as « ostensive » practices (Salin, 2002). They represent « knowledge communication practice, when the teacher provides all the constitutive element of referred notion » (Ratsimba-Rajohn, 1977).

Historically speaking, Ratsimba-Rajohn (1977) was the first didactician who identified ostension under the name of *ostensive introduction*. The introduction of Mathematical objectives by this author (Ratsimba-Rajohn, Op. cit) leads Bautier (1988) to offer a new definition to the term « ostension »: « Ostension (...) in a teaching situation allows the pupil to detect some objects and the illusion to maintain a general and precise intellectual knowledge ». In such approach, ostension is a resolution to a particular case where the teacher gives « all elements and relationships of the aimed notion » (Ratsimba-Rajohn, Op. Cit).

For Berthelot and Salin (1992), ostension results from the empiricist conception of knowledge formation. These two Math didacticians have criticized the assumed ostension from the geometry boundaries. They have considered that the « assumed » ostension, offered its place to other teaching forms such as « disguised » forms which predominates the practice in Math activities. That is why Salin (1999) has identified many conclusions from many works in ostension. In 2002, Matheron and Salin noted that ostensive practices persistence, put in evidence that « ostension captures the others didactic process ».

Furthermore, as a professional act Brousseau (1996) underlines that the combination between ostensions is a means that appears as a « professional gesture ». Thereby, this combination seems to be dear to this author via « possible-necessary articulation ». In the same order of ideas, Berdot, Blanchard-Laville and Dos Santos (1997) define ostension (at least in its forms) like a « revealing of the distance between the teacher and the knowledge and like identifiable by the analysis and the study of different

direction gestures, the study of the teacher in his management of different contract ruptures ». In others words, it is the way for the teacher to distance and to manage less or more his knowledge in a relationship with those proposed by pupils.

Since then, we think that trough this phenomenon, that the teacher has the choice of many ostension forms to teach, and the combination of this ostension forms could influence the relationship to knowledge in its proper way to be transmitted and apprehended.

Conceptual and theoretical framework

Ostensive forms

In the field of clinical didactics, few researches have focused on ostensive practices in PE. The only one is that of Robert (2012) which is concentrated on non verbal ostensive practices in gymnastics. The objective of this author is to extricate the convergence and the difference related to the teaching activity of two PE teachers in connection with ostensive practices in a gymnastics course. According to Robert and Carnus (2013), these ostensive forms are methods to transmit and/or to communicate knowledge ambiguities, moreover leal and Carnus (2014) noted that the imaged representation of the knowledge and the possibility to affect directly on persons accentuating the tendency to resort to ostensive procedures. These two teachers put in evidence that the private physical ostension and the direct physical ostension are two professional gestures in physical and sporting education (Leal and Carnus, Op.Cit).

However ostension forms and/or ostensive procedures could coexist during the action of teaching PE through the direct and/or the verbal ostension. We will quote some previously performed researches such as (Buznic-Bourgeacq, 2004; Guirat, 2005; Léal, 2006; Ben Jomâa, 2009). Buznic-Bourgeacq (2009) lists three ostension forms and/or knowledge expositions: The explanation through discourse, the manipulation of student body and the demonstration by the intermediate of teacher body. Therefore, in this research we will rely on the scale of knowledge ostensions (Robert, 2012; Salin, 2002).

The relationship to knowledge

Ostension process refers to the report that relates the teacher with the knowledge in his didactic interactions with pupils to know the characteristics. Knowledge demonstration through gestures presents « an image » (to pupils) which is more precise and more rapid of the result to be known during the apprenticeship. Therefore, the relationship to knowledge is the image of this intimate relationship to learners, to others and/or to anyone that has to learn a subject. Ben Jomâa, Terrisse and Berhaim (2007) affirm that « the relationship to knowledge is the way when the teacher designs and treats the activity that

he teaches in the moment of transmitting the knowledge ». As a research tool, the relationship to knowledge allows analyzing a connection between a subject (pupil or teacher) and knowledge in PE, the subject needs different relationship to knowledge according to the nature of the physical activity. The relationship that he establishes with this activity is taking into account the clinical anchorage of the present research. Our attention is particularly focalized on ostensive forms of the subject teacher and his relationship to knowledge.

Problem setting and research questions

In the framework of PE teaching, swimming activity is performed in difficult conditions where the communication is disturbed and the proxemics between teacher and pupil are unstable. However, the intake of information is performed in a condition only when the pupil stops his action, which interrupts the activity in water and constraints the apprenticeship evolution. Since then, the only one wording of contents by the teacher seems inadequate, insufficient and misunderstood in an aquatic environment.

In these complex conditions, how could pupils understand what the teacher said and how the teacher of swimming can transmit the knowledge(s)? From here, our research is interesting in ostensive forms in swimming while studying the effect of the relationship to knowledge on ostensive practices of PE teachers.

This manuscript on the ostensive practices in swimming is exploratory and original at least in University environment. In the problem setting, we are questioning the impact of these forms, as well as answering the following questions:

Is the combination between ostension forms are effective in an aquatic environment?

Could the relationship to knowledge affect the combined ostension?

Inspiring Robert and Carnus works (2013) that underlines that these ostensive practices are methods to transmit and/or to communicate the challenges of knowledge.

Brousseau (1996) underlines that the combination between ostensive forms is a mean seem as a « professional gesture ». Our objective is to show that the variation and the combination of the ostensive forms to the teacher is not a spontaneous and hazardous phenomenon. We postulated that the combination is the veritable object of expertise in the taught activity in PE and is revealing to the relationship to knowledge.

Method and Tools

We have started from a finding where the communication in the activity of swimming is ambiguous and difficult to manage and from a

hypothesis where the combination between ostension forms of the teacher can reveal the relationship to knowledge. To treat our hypothesis, we inscribed on the field of PE didactic clinics, then we realize a study in the case near two PE teacher and their students. They are students of the first year LFEP[1] at the ISSEP[2] of Tunis. The finality of the study is descriptive and comprehensive and it does not have the objective of modeling or generalization.

Study population

In the framework of our study, a pre-observation was carried out to the impregnate some specifies of the class and to familiarize students and teacher to the presence of a research and a came of experimentation is performed at the University of Manouba, Bardo swimming pool. Two first years LFEP are retained to experimentation of our protocol. Each has been submitted to some meeting of apprenticeship in the movement « Crawl ». Two-specialist teacher of swimming straddled students, they have a different degree of expertise and different professional experience. We call the expert teacher (TA) and the novice teacher (TB).

Observation protocol

We have observed, to each of the two teachers, a session in the middle of the cycle that is concerning the movement « Crawl ». This observation is in the core of apprenticeship during the cycle. The first observation took place with the TA and the second observation took place with the TB. Each meeting lasts near 45 minute.

Clinical didactic Methodology

Didactics takes in to consideration, all methods, techniques and procedures of teaching. Terrisse (1998) justify the interest of the clinical approach in didactics of the PE by the consideration of the singularity of each subject (personal history, personal experience etc.) in the teaching-learning process. For him, the originality of this approach consists in the articulation between didactic concepts, that try to identify the transmitted knowledge (and its stakes), and the clinical which integrates the contingency of this transmission and the fact that this knowledge is transmitted by « devised » and singular teacher (Terrisse, 2009).

Facing the constraints in an aquatic environment, the teacher has to intervene through diverse ostensive procedures (Salin, 2002). Since then PE teacher uses hard ostensive forms like particular strategies. Some implemented modalities; answers that are adapted to environment contingency obviously, which can ameliorate his relationship to knowledge in particular test moments.

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Knowing that this research is subscribing in PE clinical didactic orientation, our methodology privileges the case study and it is qualitative. This methodology rests on the study of « case by case, one by one » (Terrisse, 1999; Carnus & Terrisse, 2013) in order to apprehend the subjects in their singularities and in their complexities. This singularity is taken into account in clinical didactics by a particular attention to the personal history of each teacher. The study of his « already there » (Carnus, 2003), that is to say to put into consideration apriority and posteriori of what « singularize each teacher and so his practices from an epistemological and a didactic point of view » (Buznic-Bourgeacq, 2009).

Data collection

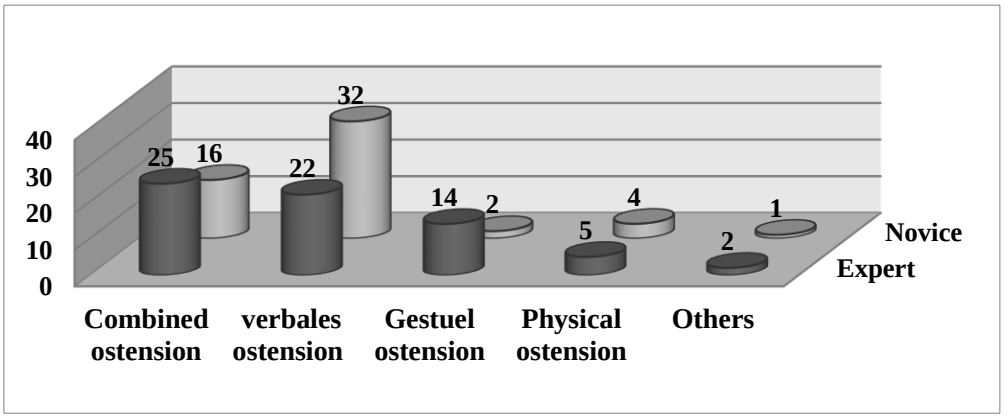
The method of collection and data analysis subscribed registered in a constructed temporality of three and distinct crossed times of professorial action: the *already there*, the *test proof* and the *after-stroke* (Terrisse, 2000). However, in the framework of this article we limit ourselves in the second time that of the test proof. The test corresponds to the moment of interaction between the teacher and pupils. The ostensive practices that were described and categorizing starting from Audio and Video recording of sessions and semi-directive data of interview and/or verbatim *(a priori*, *ante* and *post* séance and the *after-stroke).*

The treatment of the collecting data is organized to this three distinct times of clinical didactic methodology. It is about in this article to study only the second time; that of the test proof. The Audio and Video recording of meeting is completed by an ante-session interview and a post-session interview. The collection and data analysis rests on knowledge ostension scale (Salin, 2002; Robert, 2012). We use the software Sports Code V10 with Mac OS X El Captain version 10.11 for the data treatment.

Results

The obtained results of each study of case are illustrated in **graphic 1** according to (Terrisse, 2000) the professorial action.

Graphic 1. Knowledge ostension forms with TA and TB.



Discussion

Through knowledge ostension scale (Salin, 2002; Robert, 2012), graphic 1 analysis allows to illustrate some divergence between the ostensive practices of two the teachers. During the test with TA, we have enumerated 25 combined ostensions. In addition, we have identified 14 ostensions of gestural symbolic type including two oratory and rhythmic ones. We have recorded five physical private ostensions under the partial gesture demonstration. However, TA privileges the gesture, the verbal completes the gesture and it completes in the second place. He stands in a personal distance from conversation, where students can observe and see him. The latter uses the combined part preferentially in the interaction teacher/student. In effect, TA ostensive actions whether combined or gestural can have a capital importance in function of place, space, the moment and the taught activities. More specially, in swimming as a taught discipline the interaction nature varies between teacher and students. For that TA varies his communication procedures and particularly the ostensive forms. These ostensive variations could be obviously tributary to the singular history of the experience and the general life of the subject teacher. That is what we are trying to put in evidence in this article starting from the focal « the effect of the relationship to knowledge on ostensive practices in teaching » (Sghaier, & al., 2017). Since then, the dominant number of combined and gestural symbolic ostension recorded with TA shows that he transmits more often his personal experiences and his corporal expertise. Brought from « his personal life » of a specialist and a « corporal feeling » (Ben Jomâa & Terrisse, 2014), when body drawn the « only environment of adventure » (Vigarello, 1982).

Although, he notes « *that according to my experience, it occurs obviously to demonstrate physically and to combine and this due to my experience in swimming as a sport but this precludes me to explain verbally*

because the verbal usually rests on the gestural » (after-stroke, interview of TA).

Through these different ostensive forms, the expert teacher adopts his interventions in function of capacities and intentions of his learners in order to ameliorate the relationship to knowledge. Besides the relationship to knowledge is « the way for the teacher to conceive and treat the activity that he teaches during the knowledge transmission test» (Ben Jomâa, Terrisse & Berhaim, 2007). Since then, his combined ostensive practices are dominantly gestural, knowledge image that are vehiculed by his body which revealing his « personnel » or « private » relationship to knowledge and testifies his sporting expertise in swimming.

By contrary, TB uses preferentially some verbal ostensions, where 32 ostensions, 14 of them are particularly verbals and 18 are direct. For the combined ostensions, we have enumerated 9 from 12 are gestural symbolic ostensions during the TB session. According to her, the verbal is in the first place and the gesture completes the proposal. Besides, she does not appreciate to demonstrate physically which translates in her professoral activity by her « impossible to support ». Moreover, she prefers to be more close to her students to better be under control. She confirms that *« yes it is by evidence that i am close to my students and it is only to make them listen to what i am transmitting like instructions, but mainly to control them and keep them close »* (after-stroke, interview of TB).

Nevertheless, the reduced numbers of combined and gestural ostensions recorded with the TB shows she states and she explains the knowledge verbally. In effect, she tends to adopt a verbal strategy and to pass by the cognitive canal of the students. That she resorts either to the direct verbal ostension form or to the particular form. These two ostensive forms remain insufficient when it concerns the technical apprenticeship. Besides, (Mahut & al., 2005) noted that during the situation of verbal conversation, the gestural index or register of PE teacher in intervention situation is relatively varied.

Besides Vigarello and Vives (1983) works have already shown that the technical discourse needs some deviation through gestural phases. This interpretation is totally supported by Marsenach and Merand (1987) that they consider the gestuality as a part of ostensive practices to PE teacher.

Through these ostensive forms, TB finds herself facing didactic external constraints and notably those related to the didactic interaction. From one part from the other part, she abrupt to some constraints related to internal logic and to the complexity of swimming practice that is she does not master the motor knowledge and she does not want to « demonstrate » physically. In consequence, these ostensive practices are limited in verbal form reveal her

« distant » or « official » relationship to knowledge of professional experience notably in swimming teaching.

Conclusion

Through knowledge ostension scale (Salin, 2002; Robert, 2012), results put in evidence that the used ostensive forms with the expert teacher are varied. However, the ostensive forms of the novice are limited to theoretical knowledge. From this, we deduced that the use of many ostension forms in different moments of the same situation allows us to favorize student implication in the apprenticeship. With this meaning we can refer to Beillerot (1996), to him the relationship is a « knowledge creator process to an author-subject necessary to affect and to think ». In others words, the knowledge is reconstructed and reformulated by the subject himself in function of his proper corporal and professorial experience.

Moreover, the expert teacher adopts his intervention in function of capacities and intentions of his learners in order to ameliorate the relationship to knowledge. In addition to that the number of combined ostensions put in evidence his corporal and professorial experience that makes him think at the same time about « corporal expression, the language of silence » (Pujade-Renaud, 1977) and a « speaking bodies » (Jorro, 2004).

By contrary of the expert teacher, the ostensive practices of the novice teacher are limited and little varied. She deploys obviously under verbal ostension forms, which are punctual, brief and superficial.

Since then, speech and words prove powerless to express the complexity of situation and the emergence of many simultaneous elements at the moment when the gesture to concrete what you want to be seen and known.

In consequence, the absence of the knowledge image gave the reference of his students and to stands advantageous from her manner of his transmitted knowledge. Moreover, the ostension takes a predominant dimension in the relationship that unifies the teacher to the knowledge.

In fact, through the didactic interactions, the teacher has to guide his interventions in function of different obstacles have to be faced by students. In addition, he chooses the principle obstacle to intervene progressively from the easy to the difficult. But, he could also intervene in different manners and he uses specially a targets' and adopted ostension forms. Consequently, intervention choice is effective and the variation of study gesture could be registered in the complexity of the didactic relationship between the teacher, the pupils and the knowledge.

Facing the didactic relationship obstacles that are relative to the knowledge transmission, the teacher is the only responsible about knowledge emergency. In effect, he intends to mobilize some reflexive or strategic taught to intervene. In consequence, the only one solution to know the knowledge is

through ostensive procedures (Salin, 2002). From her on, teacher's experiences allow him to resort the many solutions during the meeting. More than that, the ostensive practices are considered as methods and strategies that each teacher uses to intervene and regulate the didactic relationship. Since then, the relationship to knowledge differs between the expert teacher and the novice one who is influenced not only by her didactic action but also by her professional competence.

Finally, Robert and Carnus (2013) put in evidence that these ostensive practices are methods to transmit and/or to communicate the difficulty or the challenge of knowledge. By instance, (Robert, 2012) confirms in his non verbal ostension research that the teacher affects his ostensive practices.

The perspective of this research consists of thinking about this combination like susceptible didactic strategy to help PE teacher and particularly swimming teachers to optimize their teaching activities.

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Chinese TEFL Teachers' Conceptions of Writing: A Partial Credit Model Analysis

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Abstract

This study aimed to examine Chinese TEFL (teaching English as a foreign language) teachers' conceptions of writing, in particular, to find out their agreeability with multifaceted concepts of writing, multi-functions of writing, facilitators to the development of writing, and the basis of good writing. A questionnaire containing natures, functions, and development of writing, and text features of good writing was developed to collect data online; items had 5-point Likert scales. 490 (female 76.3%) participants were engaged in the sample. Partial credit model was used to analyze participants' agreeability with these constructs concerned with conceptions of writing. Results show that participants generally tend to agree more with the transfer effect of reading activities in facilitating the development of writing as well as the contribution of vocabulary to good texts. However, results also indicate that numerous participants ignore the importance of the length and punctuations of a text, and doubt the communicative function of writing. Participants' specific agreeability with individual construct was also presented and discussed. Findings show that a Rasch Measurement effectively identifies participants' agreeability with conceptions of writing.

Keywords: EFL writing, teachers' conceptions, PCM, Chinese TEFL teachers.

Introduction

In the educational system, it has been widely approved that teachers' professional knowledge directs the effectiveness of instruction and impacts student achievement. According to Schulman, pedagogical content knowledge is the key issue of the teacher knowledge base for teaching (Shulman, 1987). Its constituent element, subject matter knowledge, referring to what teachers know, is the core and prerequisite component of teacher knowledge base. In

teaching writing in EFL (English as a foreign language) contexts, however, limited information is known about teachers' knowledge of writing (Lee, 2010). In the past few years, a variety of studies emerged in responding to Hirvela and Belcher's (2007) advocacy of more attention to writing teachers' preparation and development. These studies encompass several research themes: Writing teacher education and training (e.g., Crutchfield, 2015; Ene & Mitrea, 2013; Lee, 2010; Lee, 2013), teachers' beliefs and practice in writing instruction (e.g., Ferede, Melese, & Tefera, 2012; Fu & Matoush, 2012; Khanalizadeh & Allami, 2012; Koros, Indoshi, & Okwach, 2013); Melketo, 2012; Yang & Gao, 2013; Yang, 2015), and other teaching behaviours (e.g., Farrell, 2006; Min, 2013). However, there still seems to be a paucity of research on teachers' knowledge base of writing. In order to address this issue, the current study used the case of Chinese context to explore how TEFL teachers understand writing. Specifically, this paper uses a questionnaire aligned with Rasch Measurement Theory to examine Chinese TEFL teachers' conceptions of writing, aiming to find out their agreeability with multifaceted concepts of writing, multi-functions of writing, facilitators to the development of writing, and the basis of good writing. Therefore, the research questions guiding this study are:

- What is the reliability of the questionnaire?
- What is the general distribution of participants' overall attitudes regarding conceptions of writing?
- What effect does gender have on teachers' conceptions?
- What effect does school type have on teachers' conceptions?
- What effect does school level have on teachers' conceptions?
- What effect does school location have on teachers' conceptions?

Theoretical Background

Both learning and teaching writing in an EFL context are complex and challenging. A synthesis of literature helps with understanding comprehensively the research consensus on writing and recent studies on writing teachers' knowledge. In this section, a discussion about writing and teachers' learning about writing will be conducted.

Research consensus on writing

In studies of writing, a great deal of research has defined writing as linguistic, cognitive, and sociocultural act. Gelb (1963) in his long immensely cited book A Study of Writing defined writing as "a system of human intercommunication by means of conventionally visible marks" (p. 12). This concept clarifies the communicative tool of writing with its linguistic, social and cultural nature. Decades later, Coulmas (1996) regarded writing as product-focused or text-oriented, considering writing as the ultimate and

perpetual product of written text or discourse. It is commonly believed that the successful writing is an interaction between the writer, the written text, and the audiences (Osterholm, 1986). Therefore, writing also involves the mental process in which the writer expresses ideas in text for addressing readers. Hyland (2015) perceived writing as linguistic product that a written text is logically organized with its coherent utterance of language and grammar for specific meaning-making. Accordingly, effective writing requires the mastery of knowledge of orthography, morphology, and syntax.

Undoubtedly, writers play the key role in achieving goals of constructing good texts and addressing specific audiences. Therefore, many studies have attached importance to writing activity as a cognitive process. For a long period and even till now, the most influential model of the writing process was coined by Flower and Hayes (1981). Their model gave a whole picture of the recursive process of writing: purpose, goals, audience, generating and translating ideas, evaluating and revising texts. As a self-improvement of the model, Hayes (1996) added environmental and personal factors and emphasized motivation, cognition, and working and long-term memory in writing. Afterward, a large quantity of research has pursued the cognitive processes of writing, targeting phase-focused writing strategies. For example, Tankó (2005) treated the complex writing activity as a recursive process: prewriting, writing and reviewing.

Apart from the individual and interactional understanding of writing, research has also shed light on writing from perspectives of social and cultural aspects. Hyland (2002) claimed that writing "expresses a culturally recognized purpose, reflects a particular kind of relationship and acknowledges an engagement in a given community" (p. 48). Therefore, writing is "socially and culturally shaped and individually and socially purposeful" (Sperling, 1996, p. 55).

In general, the research community has reached a consensus on writing that learners and instructors need to bear in mind that writing involves linguistic, cognitive, social, and cultural aspects for particular communicative purposes in a specific context.

The Rasch Model

The Rasch model was named after the Danish mathematician Georg Rasch (Rasch, 1960). The model shows what should be expected in responses to items if the measurement is to be achieved. For the Rasch model, dichotomous (Rasch, 1960) and polytomous (Andrich, 1978) versions are available. The rating scale model (Andrich, 1978; Wright & Masters, 1982) and the partial credit model (Masters, 1982; Wright & Masters, 1982) are extensions to Rasch's simple logistic model and are suitable for use when items are scored polytomous. The rating scale model was initially developed by

Andrich for use with Likert-style items, while Master's extension of the rating scale model to the partial credit model was undertaken to facilitate the analysis of cognitive items that are scored into more than two ordered categories. The Rasch Model considers the fit of data and model as the precondition, putting items and individual ability or attitudes on the same scale, avoids the dependence of samples and measurement in tradition assessment so that it provides more objective and reliable information in its measurement. It measures respondents' latent traits in their responses to items, such as participants' ability, attitudes, interest, values, etc.

Methodology

Instrument

In order to address the research questions, a questionnaire was used to collect data. The questionnaire was literature-based and self-developed. It has 26 items with 5-point Likert scales (strongly disagree, disagree, uncertain, agree, strongly agree), targeting multi-faceted concepts of writing (4 items), functions of writing (6 items), development of writing (4 items), and basic components for good writing (12 items). Demographic information was also included, e.g., gender, school type, school level, and school location.

Participants

Due to the exploratory research of the current study, convenience and snowball sampling were used. In total, 490 Chinese TEFL teachers participated in this survey, 23.7% of them are male, and 76.3% are female; 89.8% are teaching in public school, 10.2% in private schools; 13.3% work in primary schools, 39.4% in junior schools, and 47.3% in senior schools; 17.1% teach in provincial capital cities, 29% in cities, 43% in a county or town, and 10.6 in villages. Participant’s work experience range from one year to 36 years (M=11.66, SD=8.31).

Procedures

The questionnaire was administered online on a Chinese platform which is easily accessible. The data collection started in early and ended by the end of January 2017. Then, all data was downloaded, recoded, and transformed into SPSS 24. Relevant data was cleaned and recoded into the .dat file for analysis in ConQuest. Based on the research questions, numerous analyses were conducted, and corresponding results are presented in the next section.

Analysis and Results

Frequency of responses distribution

Participants' responses to each construct of the questionnaire are presented respectively in Table 1, 2, 3, and 4. Also, the reliability of each construct is shown below the corresponding table.

Table 1. *Category response frequency distributions for Items 1 to 4 of multifaceted concepts of writing*

Item statement	category 1 SD	category 2 D	category 3 U	category 4 A	category 5 SA
1. Writing is a linguistic activity	14	4	5	249	218
2. Writing is a cognitive activity	8	9	32	264	177
3. Writing is a social activity	10	26	77	244	133
4. Writing is a cultural activity	10	8	24	241	207

Note: SD= Strongly disagree, D=Disagree, U= Uncertain, A= Agree, SA= Strongly agree; reliability, Cronbach's Alpha= .872 (4 items)

Table 2. *Category response frequency distributions for Items 1 to 6 of functions of writing*

Item statement	category 1 SD	category 2 D	category 3 U	category 4 A	category 5 SA
1. Writing is tool for thinking	10	5	14	240	221
2. Writing is a tool for communication	11	10	7	228	234
3. Writing is creation	12	6	7	198	267
4. Writing is addressing specific audiences	11	69	92	188	130
5. Writing is for proving students' knowledge at exams	12	15	35	239	189
6. Writing is of importance in one's career	10	19	57	211	193

Note: SD= Strongly disagree, D=Disagree, U= Uncertain, A= Agree, SA= Strongly agree; reliability, Cronbach's Alpha=.869 (6 items)

Table 3. *Category response frequency distributions for Items 1 to 4 of development of writing*

Item statement	category 1 SD	category 2 D	category 3 U	category 4 A	category 5 SA
1. Engagement in speaking facilitates writing	12	8	38	243	189
2. Engagement in reading facilitates writing	11	3	5	168	303
3. Engagement in writing activities facilitates writing	10	3	21	225	231
4. Students learn to write when they are taught to	9	7	22	266	186

Note: SD= Strongly disagree, D=Disagree, U= Uncertain, A= Agree, SA= Strongly agree; reliability, Cronbach's Alpha=.903 (4 items)

Table 4. *Category response frequency distributions for Items 1 to 12 of basis of good writing*

Item statement	category 1 SD	category 2 D	category 3 U	category 4 A	category 5 SA
1. Vocabulary	4	3	7	198	278
2. Grammar	3	12	33	265	177
3. Semantics	5	3	18	227	237
4. Content	4	4	17	189	276
5. Style of language	5	20	62	257	146
6. Cohesive devices	3	11	61	281	134
7. Structure of a paragraph	3	10	59	280	138
8. Structure of a text	4	7	55	263	161
9. Length of a text	8	70	141	206	65
10. Punctuation	7	37	146	218	82
11. Spelling	4	16	52	234	184
12. Handwriting	3	16	59	226	186

Note: SD= Strongly disagree, D=Disagree, U= Uncertain, A= Agree, SA= Strongly agree; reliability, Cronbach's Alpha=.915 (12 items)

Table 1 to 4 respectively shows that there are responses to each scale of the questionnaire with a high reliability on each construct (the Cronbach's Alpha value ranging from .869 to .915). Namely, distribution of responses to each category with various frequencies and the high reliability of the questionnaire embed a basis for Rasch measurement.

Choice of model: RSM or PCM

In the current study, the questionnaire has a 5-point Likert scale for responses, which generates polytomous data which can be analyzed using

either the Masters Partial Credit Model (PCM) (Masters, 1982) or the Andrich Rating Scale Model (RSM) (Andrich, 1978). In the RSM it is assumed that the distances between adjacent response categories within items are unequal, but all items share the same unequal distribution of distances between response categories. In the PCM the distances between adjacent categories within items are not equal and the distances between response categories are unique for each item. Therefore, a comparison will be conducted in the following in order to elicit the model fits better in answering the research questions.

Multifaceted concepts of writing

To compare the fit of the two models to the construct of multifaceted concepts of writing, a formal statistical test of the relevant fit of these models can be undertaken by comparing the deviance of the two models. It is noted that the rating scale model deviance (3340.518) is 58.56 greater than the deviance for the partial credit model (3281.961). Also, the rating scale model has used eight parameters, and the partial credit model has used 17 parameters, thus, the latter has nine more parameters. When this is compared to a chi-squared distribution with 9 degrees of freedom (16.919), this value is significant and it can be concluded that the fit of the partial credit model is significantly better than the fit of the rating scale model.

Multi-functions of writing

Likewise, on the construct of multi-functions of writing, it is found that the Deviance for RSM is 5438.986 with a total number of estimated parameters 10, and the Deviance for PCM is 5321.173 with a total number of estimated parameters 25, therefore, the difference of deviance (117) between RSM and PCM is greater than the chi-squared value $x_{(25-10=15)}^2$=24.996; PCM fits better.

Development of writing

On the construct of development of writing, RSM: Final Deviance: 2904.821, Total number of estimated parameters: 8; PCM: Final Deviance:2869.488, Total number of estimated parameters: 17, df=17-8=15, $x_{(9)}^2$=16.919, the difference of deviance between RSM and PCM is 2904.821-2869.488≈35>16.919, therefore, PCM fits better.

Basis of good writing

Similarly, on the construct of basis of good writing, RSM: Final Deviance: 10181.378, Total number of estimated parameters: 16; PCM: Final Deviance: 10083.983, Total number of estimated parameters: 49, df=49-16=33, $x_{(33)}^2$=47.400, the difference of deviance between RSM and PCM is 10181.378-10083.983≈98 > 47.400, therefore, PCM fits better.

In conclusion, PCM fits better on all constructs. Therefore, the PCM will be used to analyze the data in the following section.

General distribution of participants' agreeability with four constructs

The response model parameter estimates for the Partial Credit Model to the conceptions of writing is shown in figure 1 (1) and figure 1 (2).

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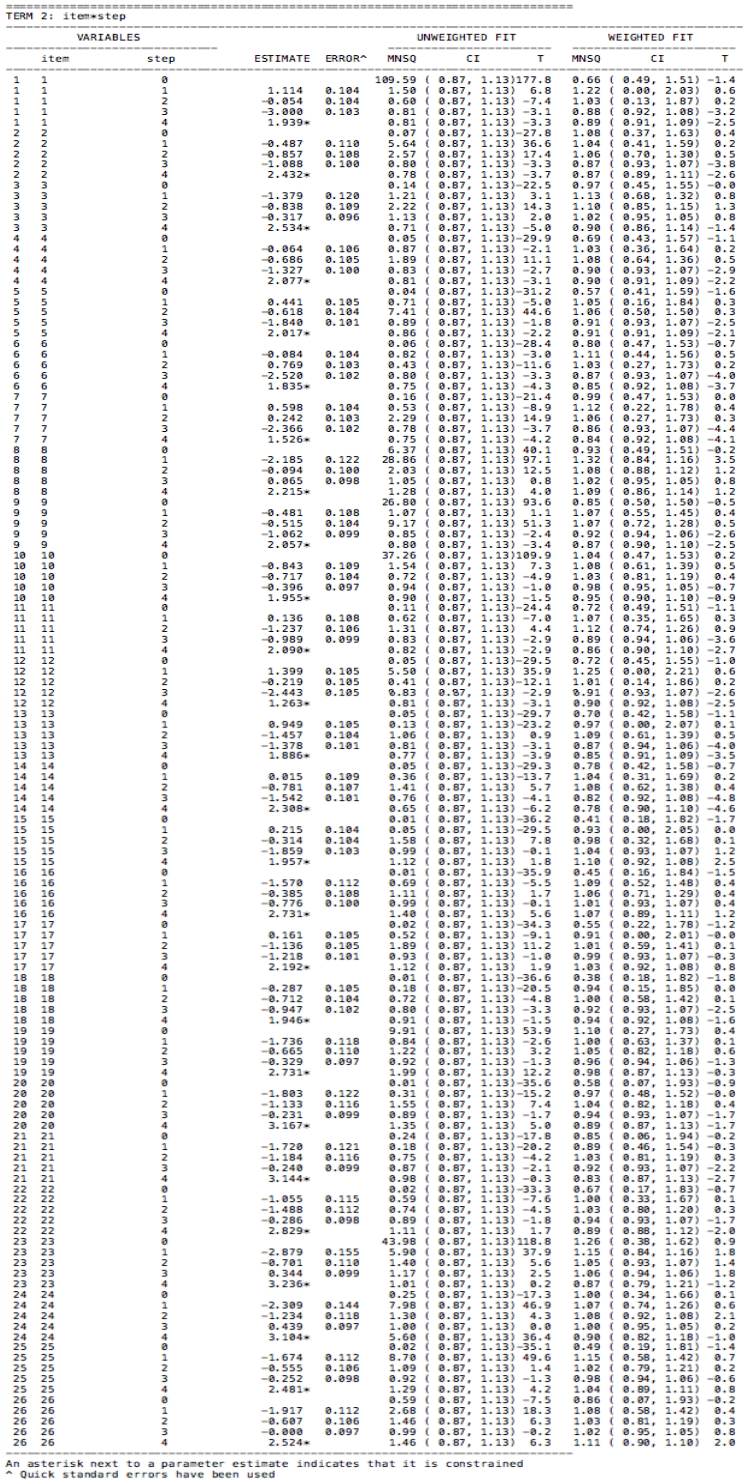
===============================================================================
tc                                                      Thu May 25 11:42:33
TABLES OF RESPONSE MODEL PARAMETER ESTIMATES
===============================================================================
TERM 1: item
-------------------------------------------------------------------------------------------------
   VARIABLES                          UNWEIGHTED FIT            WEIGHTED FIT
---------------                     ----------------------   ----------------------
     item           ESTIMATE  ERROR^  MNSQ       CI       T    MNSQ       CI       T
-------------------------------------------------------------------------------------------------
 1   1                0.070   0.052   0.90 ( 0.87, 1.13) -1.6   0.81 ( 0.78, 1.22) -1.7
 2   2                0.014   0.052   0.89 ( 0.87, 1.13) -1.8   0.90 ( 0.82, 1.18) -1.1
 3   3                0.403   0.049   1.10 ( 0.87, 1.13)  1.6   1.06 ( 0.85, 1.15)  0.8
 4   4                0.012   0.052   0.85 ( 0.87, 1.13) -2.4   0.84 ( 0.81, 1.19) -1.7
 5   5               -0.061   0.053   0.89 ( 0.87, 1.13) -1.8   0.80 ( 0.80, 1.20) -2.0
 6   6               -0.021   0.052   0.75 ( 0.87, 1.13) -4.3   0.74 ( 0.79, 1.21) -2.7
 7   7               -0.081   0.052   0.75 ( 0.87, 1.13) -4.2   0.77 ( 0.78, 1.22) -2.3
 8   8                0.625   0.045   1.74 ( 0.87, 1.13)  9.6   1.44 ( 0.87, 1.13)  6.1
 9   9                0.211   0.050   1.10 ( 0.87, 1.13)  1.6   0.97 ( 0.82, 1.18) -0.3
10  10                0.188   0.049   1.01 ( 0.87, 1.13)  0.2   1.01 ( 0.84, 1.16)  0.2
11  11                0.187   0.051   0.86 ( 0.87, 1.13) -2.2   0.89 ( 0.82, 1.18) -1.1
12  12               -0.206   0.053   0.76 ( 0.87, 1.13) -4.2   0.78 ( 0.77, 1.23) -2.0
13  13               -0.054   0.052   0.75 ( 0.87, 1.13) -4.2   0.78 ( 0.80, 1.20) -2.4
14  14                0.061   0.053   0.71 ( 0.87, 1.13) -4.9   0.74 ( 0.80, 1.20) -2.8
15  15               -0.601   0.056   0.95 ( 0.87, 1.13) -0.8   0.98 ( 0.81, 1.19) -0.2
16  16               -0.273   0.053   1.06 ( 0.87, 1.13)  1.0   1.10 ( 0.83, 1.17)  1.2
17  17               -0.412   0.054   0.92 ( 0.87, 1.13) -1.3   0.96 ( 0.82, 1.18) -0.4
18  18               -0.613   0.054   0.75 ( 0.87, 1.13) -4.2   0.89 ( 0.83, 1.17) -1.3
19  19                0.067   0.051   1.10 ( 0.87, 1.13)  1.5   1.16 ( 0.85, 1.15)  2.0
20  20               -0.166   0.053   0.86 ( 0.87, 1.13) -2.2   0.92 ( 0.85, 1.15) -1.0
21  21               -0.202   0.053   0.79 ( 0.87, 1.13) -3.5   0.87 ( 0.85, 1.15) -1.7
22  22               -0.212   0.053   0.83 ( 0.87, 1.13) -2.7   0.91 ( 0.85, 1.15) -1.2
23  23                0.894   0.048   1.39 ( 0.87, 1.13)  5.5   1.34 ( 0.88, 1.12)  5.0
24  24                0.636   0.049   1.10 ( 0.87, 1.13)  1.6   1.13 ( 0.87, 1.13)  1.9
25  25               -0.189   0.051   1.05 ( 0.87, 1.13)  0.7   1.10 ( 0.85, 1.15)  1.2
26  26               -0.276*  0.258   1.14 ( 0.87, 1.13)  2.2   1.18 ( 0.85, 1.15)  2.3
-------------------------------------------------------------------------------------------------
An asterisk next to a parameter estimate indicates that it is constrained
Separation Reliability =  0.979
Chi-square test of parameter equality = 1220.397,  df = 25,  Sig Level = 0.000
^ Quick standard errors have been used
```

Figure 1. *Response model parameter estimates for the Partial Credit Model (1)*

From figure 1(1), we can find that item 8 and 23 fit badly, namely, 'writing is addressing specific audiences' and 'length of a text' don't fit well, while figure 1(2) shows that the item*step parameters (i.e. the t-values) are generally small, the fit seems to be reasonable.

Then, from figure 2, one can find that participants generally tend to agree with most items concerning with conceptions of writing. Particularly, everyone agrees with items 12 and 15 to the largest extent, which shows that they highly accept the transfer effect of reading activities in facilitating the development of writing; also, they unanimously agree with the contribution of vocabulary to good texts. However, it can also be found that many participants disagree with item 23, 8, and 24, which indicates that numerous participants ignore the importance of the length and punctuations of a text, and neglect the communicative function of writing.



TERM 2: item*step

	VARIABLES				UNWEIGHTED FIT			WEIGHTED FIT		
	item	step	ESTIMATE	ERROR^	MNSQ	CI	T	MNSQ	CI	T
1	1	0			109.59	(0.87, 1.13)	177.8	0.66	(0.49, 1.51)	-1.4
1	1	1	1.114	0.104	1.50	(0.87, 1.13)	6.8	1.22	(0.00, 2.03)	0.6
1	1	2	-0.054	0.104	0.60	(0.87, 1.13)	-7.4	1.03	(0.13, 1.87)	0.2
1	1	3	-3.000	0.103	0.81	(0.87, 1.13)	-3.1	0.88	(0.92, 1.08)	-3.2
1	1	4	1.939*		0.81	(0.87, 1.13)	-3.3	0.89	(0.91, 1.09)	-2.5
2	2	0			0.07	(0.87, 1.13)	-27.8	1.08	(0.37, 1.63)	0.4
2	2	1	-0.487	0.110	5.64	(0.87, 1.13)	36.6	1.04	(0.41, 1.59)	0.2
2	2	2	-0.857	0.108	2.57	(0.87, 1.13)	17.4	1.06	(0.70, 1.30)	0.5
2	2	3	-1.088	0.100	0.80	(0.87, 1.13)	-3.3	0.87	(0.93, 1.07)	-3.8
2	2	4	2.432*		0.78	(0.87, 1.13)	-3.7	0.87	(0.89, 1.11)	-2.6
3	3	0			0.14	(0.87, 1.13)	-22.5	0.97	(0.45, 1.55)	-0.0
3	3	1	-1.379	0.120	1.21	(0.87, 1.13)	3.1	1.13	(0.68, 1.32)	0.8
3	3	2	-0.838	0.109	2.22	(0.87, 1.13)	14.3	1.10	(0.85, 1.15)	1.3
3	3	3	-0.317	0.096	1.13	(0.87, 1.13)	2.0	1.02	(0.95, 1.05)	0.8
3	3	4	2.534*		0.71	(0.87, 1.13)	-5.0	0.90	(0.86, 1.14)	-1.4
4	4	0			0.05	(0.87, 1.13)	-29.9	0.69	(0.43, 1.57)	-1.1
4	4	1	-0.064	0.106	0.87	(0.87, 1.13)	-2.1	1.03	(0.36, 1.64)	0.2
4	4	2	-0.686	0.105	1.89	(0.87, 1.13)	11.1	1.08	(0.64, 1.36)	0.5
4	4	3	-1.327	0.100	0.83	(0.87, 1.13)	-2.7	0.90	(0.93, 1.07)	-2.9
4	4	4	2.077*		0.81	(0.87, 1.13)	-3.1	0.90	(0.91, 1.09)	-2.2
5	5	0			0.04	(0.87, 1.13)	-31.2	0.57	(0.41, 1.59)	-1.6
5	5	1	0.441	0.105	0.71	(0.87, 1.13)	-5.0	1.05	(0.16, 1.84)	0.3
5	5	2	-0.618	0.104	7.41	(0.87, 1.13)	44.6	1.06	(0.50, 1.50)	0.3
5	5	3	-1.840	0.101	0.89	(0.87, 1.13)	-1.8	0.91	(0.93, 1.07)	-2.5
5	5	4	2.017*		0.86	(0.87, 1.13)	-2.2	0.91	(0.91, 1.09)	-2.1
6	6	0			0.06	(0.87, 1.13)	-28.4	0.80	(0.47, 1.53)	-0.7
6	6	1	-0.084	0.104	0.82	(0.87, 1.13)	-3.0	1.11	(0.44, 1.56)	0.5
6	6	2	0.769	0.103	0.43	(0.87, 1.13)	-11.6	1.03	(0.27, 1.73)	0.2
6	6	3	-2.520	0.102	0.80	(0.87, 1.13)	-3.3	0.87	(0.93, 1.07)	-4.0
6	6	4	1.835*		0.75	(0.87, 1.13)	-4.3	0.85	(0.92, 1.08)	-3.7
7	7	0			0.16	(0.87, 1.13)	-21.4	0.99	(0.47, 1.53)	0.0
7	7	1	0.598	0.104	0.53	(0.87, 1.13)	-8.9	1.12	(0.22, 1.78)	0.4
7	7	2	0.242	0.103	2.29	(0.87, 1.13)	14.9	1.06	(0.27, 1.73)	0.3
7	7	3	-2.366	0.102	0.78	(0.87, 1.13)	-3.7	0.86	(0.93, 1.07)	-4.4
7	7	4	1.526*		0.75	(0.87, 1.13)	-4.2	0.84	(0.92, 1.08)	-4.1
8	8	0			6.37	(0.87, 1.13)	40.1	0.93	(0.49, 1.51)	-0.2
8	8	1	-2.185	0.122	28.86	(0.87, 1.13)	97.1	1.32	(0.84, 1.16)	3.5
8	8	2	-0.094	0.100	2.03	(0.87, 1.13)	12.5	1.08	(0.88, 1.12)	1.2
8	8	3	0.065	0.098	1.05	(0.87, 1.13)	0.8	1.02	(0.95, 1.05)	0.8
8	8	4	2.215*		1.28	(0.87, 1.13)	4.0	1.09	(0.86, 1.14)	1.2
9	9	0			26.80	(0.87, 1.13)	93.6	0.85	(0.50, 1.50)	-0.5
9	9	1	-0.481	0.108	1.07	(0.87, 1.13)	1.1	1.07	(0.55, 1.45)	0.4
9	9	2	-0.515	0.104	9.17	(0.87, 1.13)	51.3	1.07	(0.72, 1.28)	0.5
9	9	3	-1.062	0.099	0.85	(0.87, 1.13)	-2.4	0.92	(0.94, 1.06)	-2.6
9	9	4	2.057*		0.80	(0.87, 1.13)	-3.4	0.87	(0.90, 1.10)	-2.5
10	10	0			37.26	(0.87, 1.13)	109.9	1.04	(0.47, 1.53)	0.2
10	10	1	-0.843	0.109	1.54	(0.87, 1.13)	7.3	1.08	(0.61, 1.39)	0.5
10	10	2	-0.717	0.104	0.72	(0.87, 1.13)	-4.9	1.03	(0.81, 1.19)	0.4
10	10	3	-0.396	0.097	0.94	(0.87, 1.13)	-1.0	0.98	(0.95, 1.05)	-0.7
10	10	4	1.955*		0.90	(0.87, 1.13)	-1.5	0.95	(0.90, 1.10)	-0.9
11	11	0			0.11	(0.87, 1.13)	-24.4	0.72	(0.49, 1.51)	-1.1
11	11	1	0.136	0.108	0.62	(0.87, 1.13)	-7.0	1.07	(0.35, 1.65)	0.3
11	11	2	-1.237	0.106	1.31	(0.87, 1.13)	4.4	1.12	(0.74, 1.26)	0.9
11	11	3	-0.989	0.099	0.83	(0.87, 1.13)	-2.9	0.89	(0.94, 1.06)	-3.6
11	11	4	2.090*		0.82	(0.87, 1.13)	-2.9	0.86	(0.90, 1.10)	-2.7
12	12	0			0.05	(0.87, 1.13)	-29.5	0.72	(0.45, 1.55)	-1.0
12	12	1	1.399	0.105	5.50	(0.87, 1.13)	35.9	1.25	(0.00, 2.21)	0.6
12	12	2	-0.219	0.105	0.41	(0.87, 1.13)	-12.1	1.01	(0.14, 1.86)	0.2
12	12	3	-2.443	0.105	0.83	(0.87, 1.13)	-2.9	0.91	(0.93, 1.07)	-2.6
12	12	4	1.263*		0.81	(0.87, 1.13)	-3.1	0.90	(0.92, 1.08)	-2.5
13	13	0			0.05	(0.87, 1.13)	-29.7	0.70	(0.42, 1.58)	-1.1
13	13	1	0.949	0.105	0.13	(0.87, 1.13)	-23.2	0.97	(0.00, 2.07)	0.1
13	13	2	-1.457	0.104	1.06	(0.87, 1.13)	0.9	1.09	(0.61, 1.39)	0.5
13	13	3	-1.378	0.101	0.81	(0.87, 1.13)	-3.1	0.87	(0.94, 1.06)	-4.0
13	13	4	1.886*		0.77	(0.87, 1.13)	-3.9	0.85	(0.91, 1.09)	-3.5
14	14	0			0.05	(0.87, 1.13)	-29.3	0.78	(0.42, 1.58)	-0.7
14	14	1	0.015	0.109	0.36	(0.87, 1.13)	-13.7	1.04	(0.31, 1.69)	0.2
14	14	2	-0.781	0.107	1.41	(0.87, 1.13)	5.7	1.08	(0.62, 1.38)	0.4
14	14	3	-1.542	0.101	0.76	(0.87, 1.13)	-4.1	0.82	(0.92, 1.08)	-4.8
14	14	4	2.308*		0.65	(0.87, 1.13)	-6.2	0.78	(0.90, 1.10)	-4.6
15	15	0			0.01	(0.87, 1.13)	-36.2	0.41	(0.18, 1.82)	-1.7
15	15	1	0.215	0.104	0.05	(0.87, 1.13)	-29.5	0.93	(0.00, 2.05)	0.0
15	15	2	-0.314	0.104	1.58	(0.87, 1.13)	7.8	0.98	(0.32, 1.68)	0.1
15	15	3	-1.859	0.103	0.99	(0.87, 1.13)	-0.1	1.04	(0.93, 1.07)	1.2
15	15	4	1.957*		1.12	(0.87, 1.13)	1.8	1.10	(0.92, 1.08)	2.5
16	16	0			0.01	(0.87, 1.13)	-35.9	0.45	(0.16, 1.84)	-1.5
16	16	1	-1.570	0.112	0.69	(0.87, 1.13)	-5.5	1.09	(0.52, 1.48)	0.4
16	16	2	-0.385	0.108	1.11	(0.87, 1.13)	1.7	1.06	(0.71, 1.29)	0.4
16	16	3	-0.776	0.100	0.99	(0.87, 1.13)	-0.1	1.01	(0.93, 1.07)	0.4
16	16	4	2.731*		1.40	(0.87, 1.13)	5.6	1.07	(0.89, 1.11)	1.2
17	17	0			0.02	(0.87, 1.13)	-34.3	0.55	(0.22, 1.78)	-1.2
17	17	1	0.161	0.105	0.52	(0.87, 1.13)	-9.1	0.91	(0.00, 2.01)	-0.0
17	17	2	-1.136	0.105	1.89	(0.87, 1.13)	11.2	1.01	(0.59, 1.41)	0.1
17	17	3	-1.218	0.101	0.93	(0.87, 1.13)	-1.0	0.99	(0.93, 1.07)	-0.3
17	17	4	2.192*		1.12	(0.87, 1.13)	1.9	1.03	(0.92, 1.08)	0.8
18	18	0			0.01	(0.87, 1.13)	-36.6	0.38	(0.18, 1.82)	-1.8
18	18	1	-0.287	0.105	0.18	(0.87, 1.13)	-20.5	0.94	(0.15, 1.85)	0.0
18	18	2	-0.712	0.104	0.72	(0.87, 1.13)	-4.8	1.00	(0.58, 1.42)	0.1
18	18	3	-0.947	0.102	0.80	(0.87, 1.13)	-3.3	0.92	(0.93, 1.07)	-2.5
18	18	4	1.946*		0.91	(0.87, 1.13)	-1.5	0.94	(0.92, 1.08)	-1.6
19	19	0			9.91	(0.87, 1.13)	53.9	1.10	(0.27, 1.73)	0.4
19	19	1	-1.736	0.118	0.84	(0.87, 1.13)	-2.6	1.00	(0.63, 1.37)	0.1
19	19	2	-0.665	0.110	1.22	(0.87, 1.13)	3.2	1.05	(0.82, 1.18)	0.6
19	19	3	-0.329	0.097	0.92	(0.87, 1.13)	-1.3	0.96	(0.94, 1.06)	-1.3
19	19	4	2.731*		1.99	(0.87, 1.13)	12.2	0.98	(0.87, 1.13)	-0.3
20	20	0			0.01	(0.87, 1.13)	-35.6	0.58	(0.07, 1.93)	-0.9
20	20	1	-1.803	0.122	0.31	(0.87, 1.13)	-15.2	0.97	(0.48, 1.52)	-0.0
20	20	2	-1.133	0.116	1.55	(0.87, 1.13)	7.4	1.04	(0.82, 1.18)	0.4
20	20	3	-0.231	0.099	0.89	(0.87, 1.13)	-1.7	0.94	(0.93, 1.07)	-1.7
20	20	4	3.167*		1.35	(0.87, 1.13)	5.0	0.89	(0.87, 1.13)	-1.7
21	21	0			0.24	(0.87, 1.13)	-17.8	0.85	(0.06, 1.94)	-0.2
21	21	1	-1.720	0.121	0.18	(0.87, 1.13)	-20.2	0.89	(0.46, 1.54)	-0.3
21	21	2	-1.184	0.116	0.75	(0.87, 1.13)	-4.2	1.03	(0.81, 1.19)	0.3
21	21	3	-0.240	0.099	0.87	(0.87, 1.13)	-2.1	0.92	(0.93, 1.07)	-2.2
21	21	4	3.144*		0.98	(0.87, 1.13)	-0.3	0.83	(0.87, 1.13)	-2.7
22	22	0			0.02	(0.87, 1.13)	-33.3	0.67	(0.17, 1.83)	-0.7
22	22	1	-1.055	0.115	0.59	(0.87, 1.13)	-7.6	1.00	(0.33, 1.67)	0.1
22	22	2	-1.488	0.112	0.74	(0.87, 1.13)	-4.5	1.03	(0.80, 1.20)	0.3
22	22	3	-0.286	0.098	0.89	(0.87, 1.13)	-1.8	0.94	(0.93, 1.07)	-1.7
22	22	4	2.829*		1.11	(0.87, 1.13)	1.7	0.89	(0.88, 1.12)	-2.0
23	23	0			43.98	(0.87, 1.13)	118.8	1.26	(0.38, 1.62)	0.9
23	23	1	-2.879	0.155	5.90	(0.87, 1.13)	37.9	1.15	(0.84, 1.16)	1.8
23	23	2	-0.701	0.110	1.40	(0.87, 1.13)	5.6	1.05	(0.93, 1.07)	1.4
23	23	3	0.344	0.099	1.17	(0.87, 1.13)	2.5	1.06	(0.94, 1.06)	1.8
23	23	4	3.236*		1.01	(0.87, 1.13)	0.2	0.87	(0.79, 1.21)	-1.2
24	24	0			0.25	(0.87, 1.13)	-17.3	1.00	(0.34, 1.66)	0.1
24	24	1	-2.309	0.144	7.98	(0.87, 1.13)	46.9	1.07	(0.74, 1.26)	0.6
24	24	2	-1.234	0.118	1.30	(0.87, 1.13)	4.3	1.08	(0.92, 1.08)	2.1
24	24	3	0.439	0.097	1.00	(0.87, 1.13)	0.0	1.00	(0.95, 1.05)	0.2
24	24	4	3.104*		5.60	(0.87, 1.13)	36.4	0.90	(0.82, 1.18)	-1.0
25	25	0			0.02	(0.87, 1.13)	-35.1	0.49	(0.19, 1.81)	-1.4
25	25	1	-1.674	0.112	8.70	(0.87, 1.13)	49.6	1.15	(0.58, 1.42)	0.7
25	25	2	-0.555	0.106	1.09	(0.87, 1.13)	1.4	1.02	(0.79, 1.21)	0.2
25	25	3	-0.252	0.098	0.92	(0.87, 1.13)	-1.3	0.98	(0.94, 1.06)	-0.6
25	25	4	2.481*		1.29	(0.87, 1.13)	4.2	1.04	(0.89, 1.11)	0.8
26	26	0			0.59	(0.87, 1.13)	-7.5	0.86	(0.07, 1.93)	-0.2
26	26	1	-1.917	0.112	2.68	(0.87, 1.13)	18.3	1.08	(0.58, 1.42)	0.4
26	26	2	-0.607	0.106	1.46	(0.87, 1.13)	6.3	1.03	(0.81, 1.19)	0.3
26	26	3	-0.000	0.097	0.99	(0.87, 1.13)	-0.2	1.02	(0.95, 1.05)	0.8
26	26	4	2.524*		1.46	(0.87, 1.13)	6.3	1.11	(0.90, 1.10)	2.0

An asterisk next to a parameter estimate indicates that it is constrained
^ Quick standard errors have been used

Figure 1. *Response model parameter estimates for the Partial Credit Model (2)*

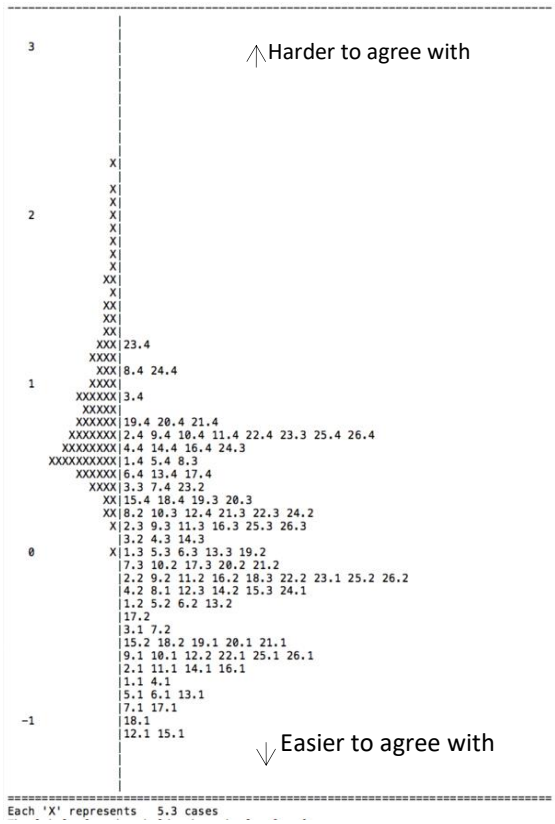


Figure 2. *Item-Person Map: General distribution of participants' agreeability with conceptions of writing*

Agreeability with multifaceted concepts of writing

In the current study, four constructs of teachers' conceptions of writing are included. It is, therefore, worth looking at participants' agreeability with each construct, from perspectives of their gender, school types, school levels, and school locations.

From Figure 3, it can found that both male and female participants mostly agree with writing as a linguistic and cultural activity, but do not fully agree with its social nature. From Figure 4, we can find that participants from private schools easily agree with writing as a linguistic and cultural activity, while those from public school are more unwilling to the social nature of writing. Figure 5 shows that teachers in junior and senior schools agree most with the linguistic nature of writing, while those teach in primary school can hardly agree with writing as a social activity. Figure 6 indicates that teachers work provincial capitals or county or town are inclined to accept writing as a linguistic act, while those from the rural areas are difficult to recognize writing as a social activity.

Harder to agree with

Figure 3. *Item-Person Map: Gender*

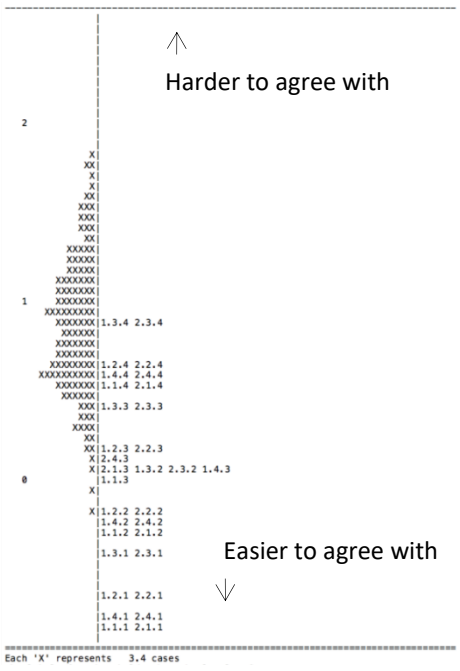


Figure 4. *Item-Person Map: School type*

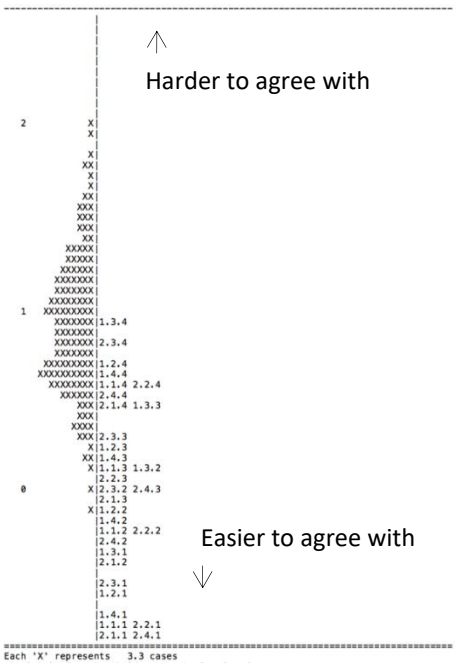


Figure 5. *Item-Person Map: School level*

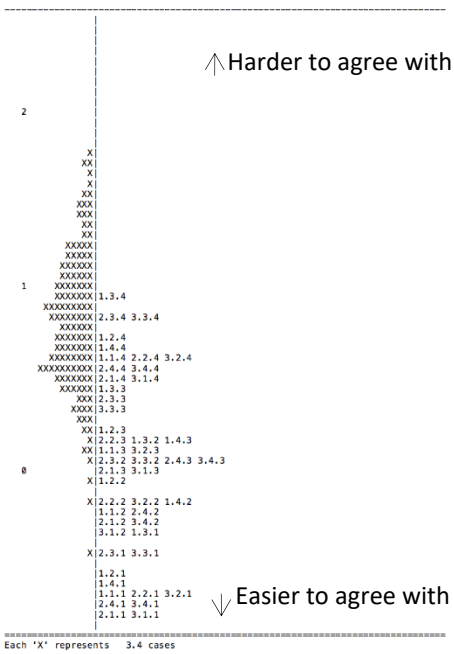
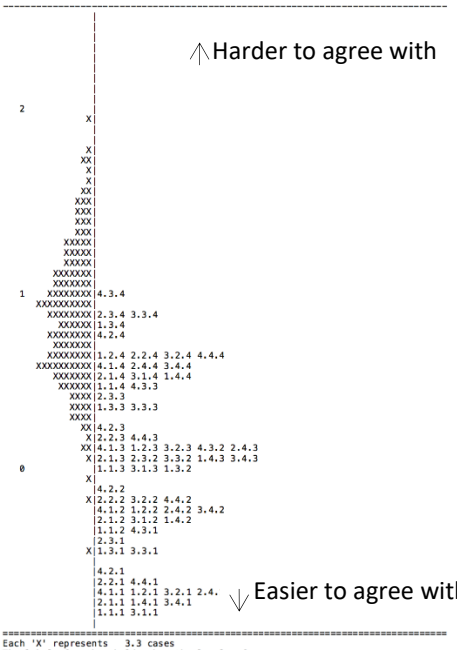


Figure 6. *Item-Person Map: School location*



Agreeability with multi-functions of writing

From Figure 7, one can find that male participants easily agree with writing as creation, while female teachers are difficult to agree with its function in addressing specific audiences.

Figure 8 shows that participants from private schools easily agree with 'writing is of importance in one's career', while those from private school are more unwilling to recognize writing is addressing specific audiences.

Figure 9 indicates that teachers in senior schools agree most with writing as creation, while those teach in primary school can hardly agree with writing is addressing specific audiences.

Figure 10 shows that teachers work provincial capitals are inclined to accept writing as creation, while those from the rural areas are difficult to recognize writing is addressing specific audiences.

Figure 7. *Item-Person Map: Gender*

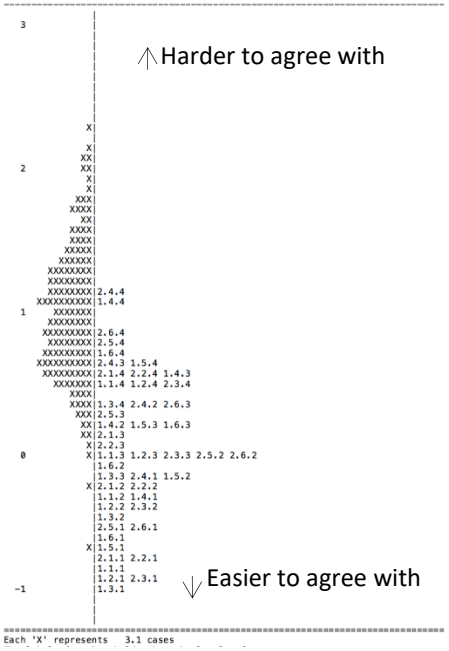


Figure 8. *Item-Person Map: School type*

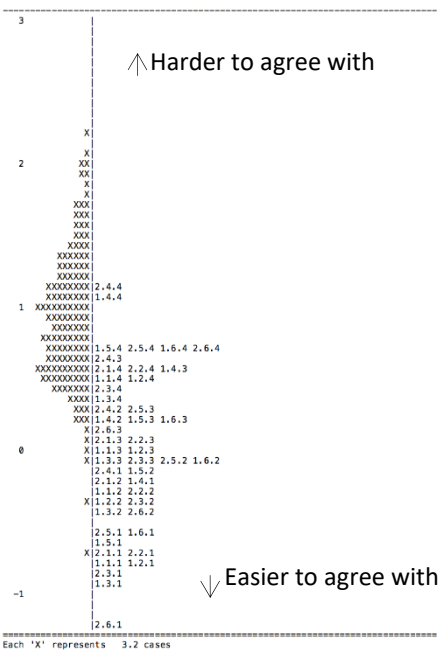


Figure 9. *Item-Person Map: School level*

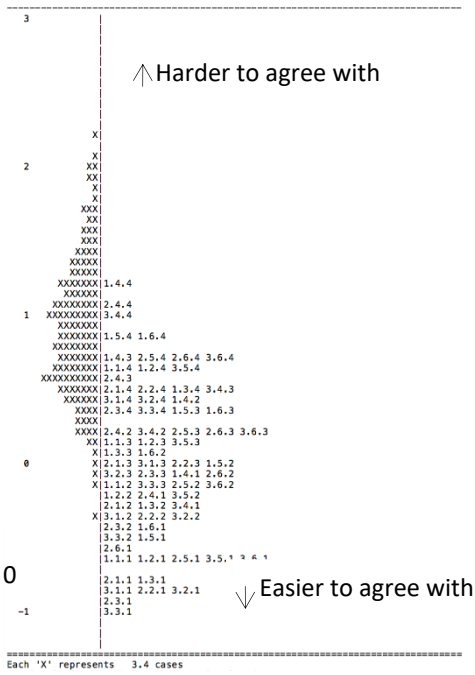
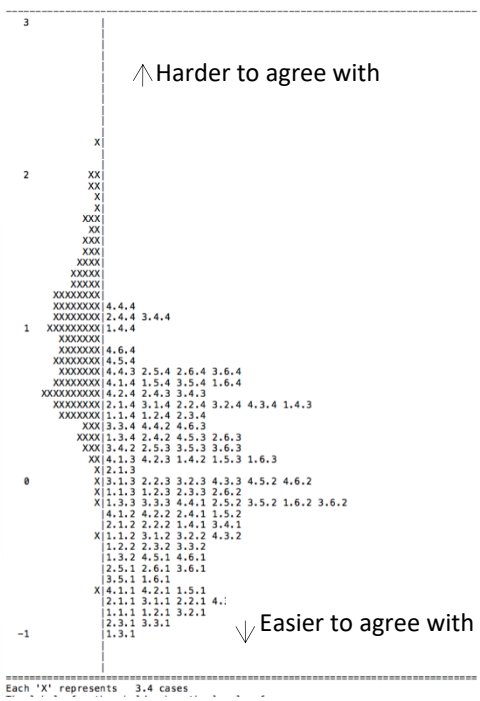


Figure 10. *Item-Person Map: School location*



Agreeability with development of writing

From Figure 11, one can find that male and female participants mostly agree with the contribution of reading activities to the development of writing, while both male and female teachers are difficult to agree with the effect of speaking activities on writing development, and female participants are also unwilling to accept the effect of writing instruction on writing development.

Figure 12 shows that participants from private schools easily agree with the effect of reading activities on the development of writing, while teachers in both public and private schools are more unwilling to recognize the effect of speaking activities, and public school teachers also doubt the effect of writing instruction on developing writing.

Figure 13 indicates that teachers in senior schools agree most with the effect of reading activities, while teachers in primary and junior are uncertain with the effect of speaking activities on developing writing.

Figure 14 shows that teachers work provincial capitals are inclined to accept with the effect of reading activities, while those teach in cities are difficult to recognize the effect of speaking activities on developing writing.

Figure 11. *Item-Person Map: Gender*

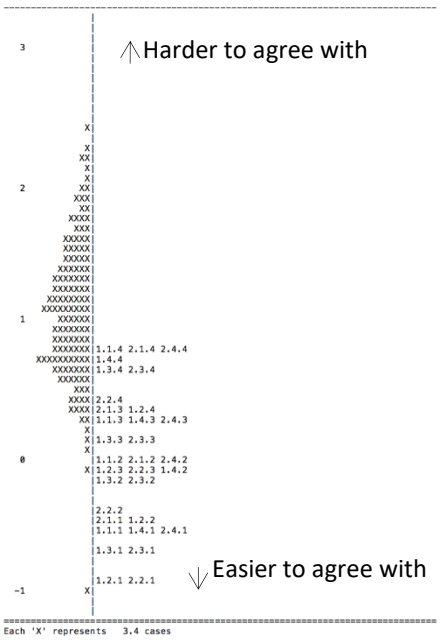


Figure 12. *Item-Person Map: School type*

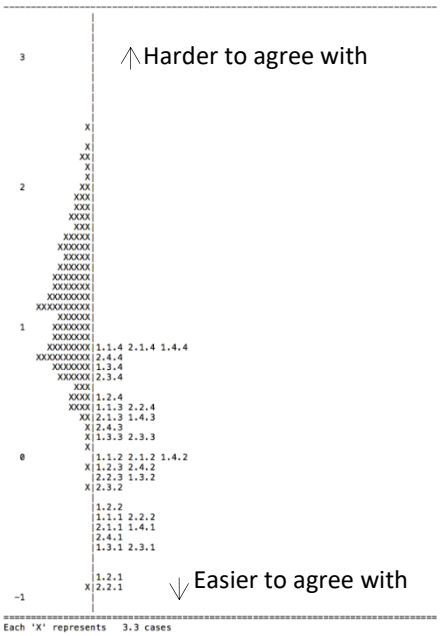


Figure 13. *Item-Person Map: School level*

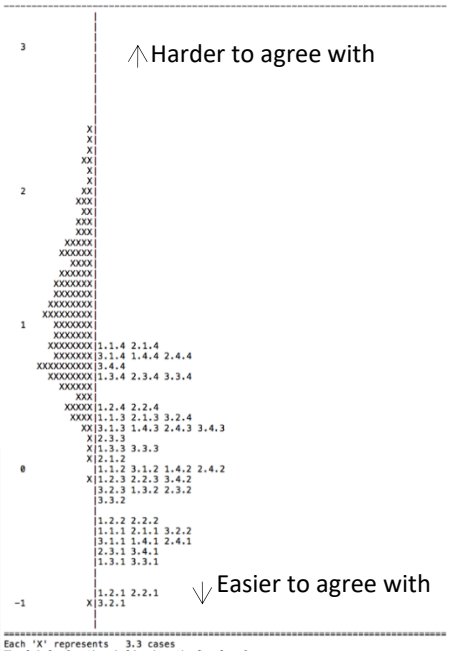
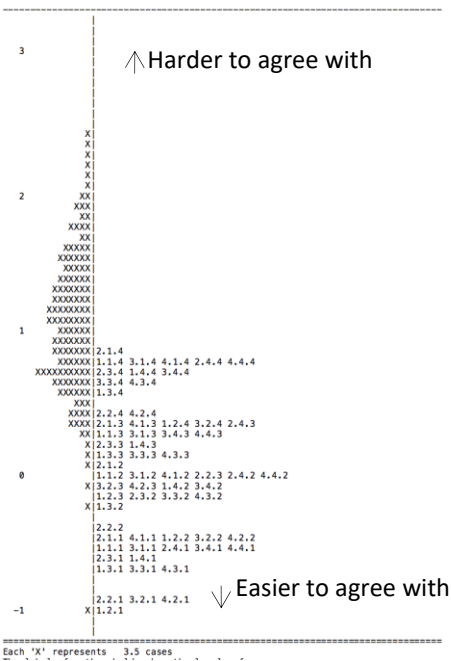


Figure 14. *Item-Person Map: School location*



Agreeability with basis of good writing

From Figure 15, one can find that male and female participants mostly agree with vocabulary and grammar as features of good writing, while both genders doubt the length of a text as the basis of good writing.

Figure 16 shows that participants from public and private schools easily agree with vocabulary and content as basis of good writing, and teachers in private schools are aware of grammar, semantics and cohesive devices as basis of good writing, while teachers in both public and private schools are more unwilling to disagree length of a text as basis of good writing.

Figure 17 indicates that teachers in junior schools agree most with the vocabulary and content as basis of good writing, and senior school teachers accept vocabulary, grammar, semantics, structure of a paragraph, and handwriting as basis of good writing, teachers in primary, junior, and senior schools are unanimously apt to disagree with length and punctuation as basis of good writing.

Figure 18 shows that teachers work provincial capitals are inclined to accept with vocabulary, grammar, and semantics as basis of good writing, and those teach in cities recognize vocabulary, grammar, content, style, cohesive devices, structure of a paragraph, and punctuation as basis of good writing, while those in cities and villages are harder to accept length as basis of good text.

Figure 15. *Item-Person Map: Gender*

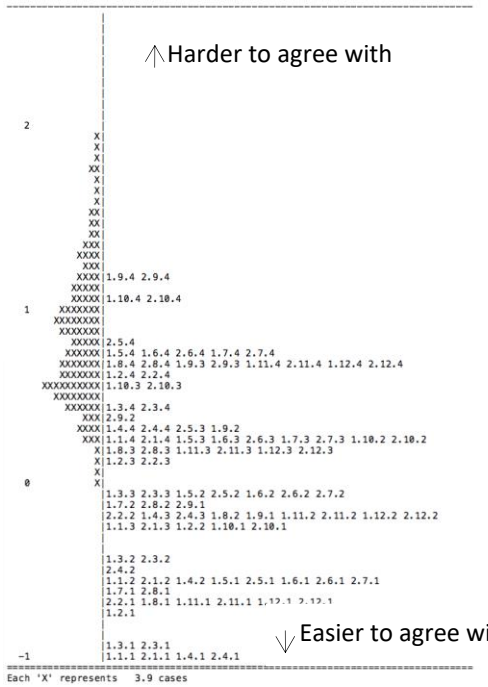


Figure 16. *Item-Person Map: School type*

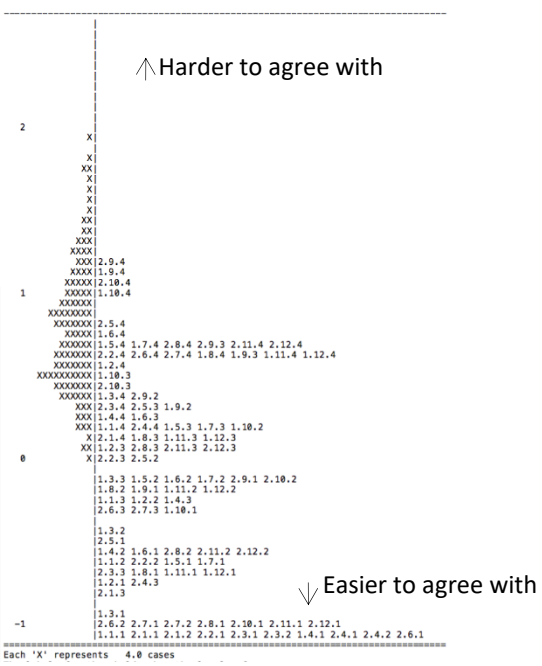
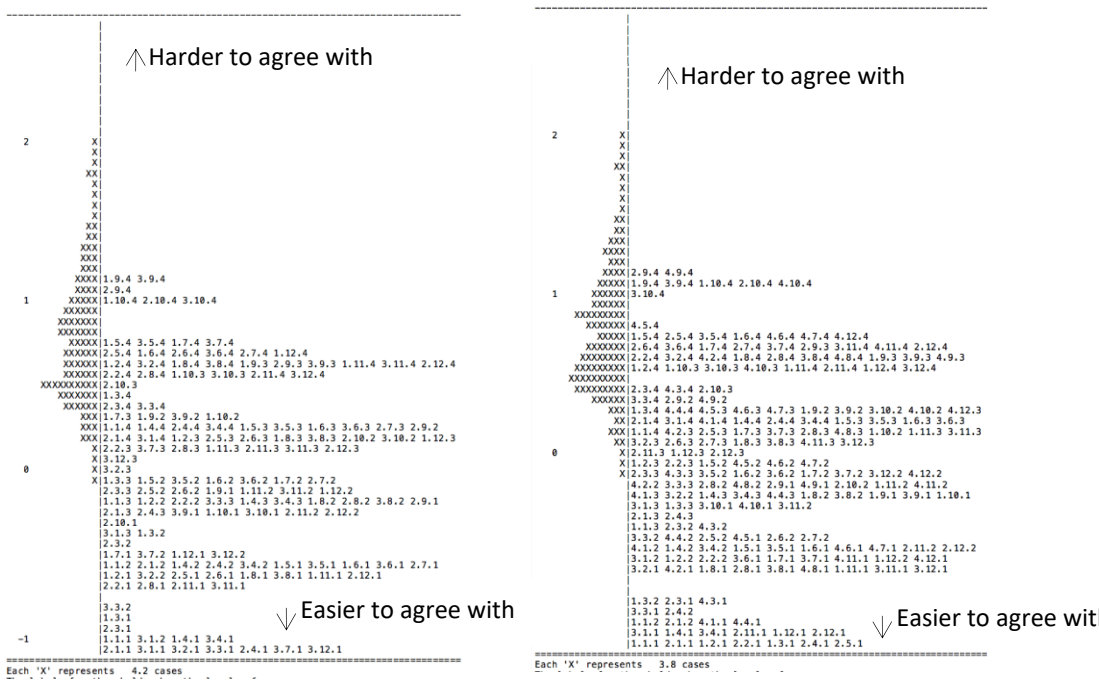


Figure 17. *Item-Person Map: School level* Figure 18. *Item-Person Map: School location*



Discussion and Conclusion

This paper aimed to examine Chinese TEFL teachers' conceptions of writing, in particular, to find out their agreeability with multifaceted concepts of writing, multi-functions of writing, facilitators to the development of writing, and the basis of good writing.

Through various analyses, it is found that the reliability of the questionnaire is high. Also, results show that the partial credit model fits generally well on each construct regarding conceptions of writing. On the whole, participants generally tend to highly agree with the transfer effect of reading activities in facilitating the development of writing as well as the contribution of vocabulary to good texts. However, results also indicate that numerous participants ignore the importance of the length and punctuations of a text, and neglect the communicative function of writing.

With respect to the multifaceted natures of writing, either male and female participants, or teachers from public and private schools, or in primary, junior or senior schools, or in provincial capitals, cities, county or town, generally accept writing as a linguistic activity. Meanwhile, however, they unanimously neglect the social communicative nature of writing.

In terms of functions of writing, male teachers, senior school teachers and those in provincial capitals agree to the large extent with writing as creation, but interestingly, female teachers, primary school teachers, private

school teachers, and village school teachers are harder to agree with writing is for addressing specific audiences.

With regard to development of writing, genders, private school teachers, senior school teachers, and provincial capital school teachers agree most with the transfer effect of reading activities on developing writing. However, genders, teachers in public and private schools, primary and junior school teachers, and teacher in cities doubt the effect of speaking activities on developing writing.

On the construct of good texts, genders, teachers in public and private schools, junior and senior school teachers, and those in provincial capital and cities generally agree with vocabulary as the basis for good writing, but interestingly, gender, school types, school levels, and teachers in cities and villages are harder to agree with the contribution of length to good text.

In conclusion, findings in this paper show that a Rasch Measurement objectively and reliably identified teachers' preferential conceptions of writing.

Acknowledgements

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Management of Cognitive Information and its Relation to the Cognitive Interaction of University Students

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Abstract

After reviewing the studies and literature that dealt with information management, it was apparent that many students failed to manage and process information during their learning process. This is not due to a decline in the degree of intelligence or lack of tendency to study, but due to the lack of learning processes that include planning, monitoring, evaluation and control of their cognitive abilities. Therefore, the current research will try to identify the level of information management knowledge of university students and what is the relationship between the management of knowledge information and knowledge overlap?

Keywords: Cognitive information, cognitive interaction, attention.

Introduction

Knowledge management is an important process in student activity, so efforts must be made to try to organize self-learning so that they can continue to deal with their educational duties and meet challenges. Cognitive management is an important basis for reaching the goals that are planned and planned with awareness and accuracy. Knowledge management plays an important role in our lives and the life of the student in particular. The importance of the current research stems from the importance of the university students and their active role in the development of education.

The current research aims to identify:

1. Management of knowledge of university students.
2. Differences in knowledge management according to gender variables (males, females) and (scientific, literary).
3. Knowledge Interference among university students.
4. Differences in knowledge management according to gender variables (males, females) and (scientific, literary).

Limitations of research: The current research is determined by the Mustansiriya University students of males and females and scientific and humanities for the academic year (2016-2017).

1. Terminology

Information Management has been defined as the ability to use skills and strategies in a specific direction for the most efficient processing of information, including management, preference and summary (Schraw&Denniso, 1994). Adkin (1997) has described it as the ability of learners to control knowledge processes during the error, and to respond to avoid them to reach the correct results. According to Bandura (2005) it is a moral act that involves the work of things that come with knowledge satisfaction and a sense of self-worth.

Knowledge Interference has also been defined in various ways, for example as cognitive process that leads to reduced cognitive competence and academic performance (Sarsan,1988), as a state of distraction when performing certain tasks (Harnishfeger & Bjorklund, 1996), and as cutting the way for any knowledge processing and memory buffering (Northan, 2010).

2. Theoretical framework

This chapter includes a presentation of the most important theories that explain the variable of knowledge management and theories that explained the variable of cognitive overlap.

2.1 Information Management:

The theories in cognitive management are necessary to understand the conditions behind the motivation of the academic students, because the imbalance between inputs and outputs leads to a state of negativity. Pandora's cognitive social learning theory (1977-1986) states that cognitive management processes include cognitive observation as a performance monitor even if attention is not complete.

According to Brown's Theory (1987), there is a distinction between learning and managing knowledge. Learning knowledge cannot be stable, but stability may be late or weak. The first step depends more on the environment than on age. The theory of Maykenbaum and Esseno (1979) holds that the

management of cognitive information is carried out by cognitive instruction and cognitive discourse (Abu Riash, 2006, 354). Zimmerman's Information Management Theory of Information is based on Pandora's three-dimensional paradigm of reciprocal determinism, which assumes that cognitive, environmental, and behavioral factors operate separately and are internally dependent on learner interaction with academic tasks.Piaget's Theory of Cognitive Information Management believes that the child's activity is a collection of activities that attempt to understand the stimuli or solve the problem. These activities lead to new cognitive structures. Two processes that occur during cognitive management are representation and harmonization.

Knowledge Interference (Sarason, 1990) provided an important interpretation of the concept of cognitive overlap in two main areas:

1. Job-related ideas: a set of negative thoughts about the self and related to the individual's performance of the tasks assigned to him that relate to the level of his abilities and abilities.
2. Ideas that are not related to the tasks: the ideas that feel the individual tension and away from the task assigned to him, such as thinking of his family and games and his friends and negative thoughts about himself and others.

2.2. Cognitive overlap:

The researchers who studied the cognitive overlap faced the challenges of distinguishing between internal and external ideas. The interior reflects ideas related to completion of tasks (external to duty) and external ones that refer to extraneous (non-relevant) ideas that keep the individual from completing the task assigned to it (Broadbent.etal, 1982: 16).Triesman notes that the cognitive system allows all stimuli to enter and manipulates relevant stimuli and weakens others. Deutch and Deutsches, however, pick the information too late, allowing the cognitive device to pass all possible stimuli and only select the relevant information in the latter.

Johnson, Johnston and Wilson (1980) believe that the cognitive system selects stimuli according to individuals' goals and the difficulties associated with the task. The higher the number of stages of cognitive processing, the higher the cognitive resources required. The lowest number of information to the cognitive device. Nayser suggests that the required expertise should be sought in the environmental conditions in which it occurred, or in circumstances similar to those where experience was acquired (Matias, 2005:67).

One of the most important factors that control cognitive overlap is the distribution of attention sources. The experience of John Ridley Stroop (1935) suggests that the distribution of attention sources is done by selecting the stimulus we want to focus on, knowing how to make this choice (how to adjust the distribution of sources of our attention), not being preoccupied with

unimportant stimuli. The area of the central apparatus, which plays the role of information processing, is limited to the retention of sources of attention and learners, in turn, from which to derive the two important tasks (Kahneman, 1973). Loss of control over thoughts because of anxiety or ambition to participate in tasks and good focus on them, play an important role in behavior (Kazdin, 1990: 73_79).) Perceptions of the threat aspects and the negative personal effects of failure make the individual less capable of addressing internal and environmental information related to duty (Trapp & Kausler, 1958: 3134) and their attention is weak.

3. Research methodology and procedures

This chapter includes procedures and methodology of research.The descriptive descriptive approach was used to study the correlation between variables. The research community consists of students of the Mustansiriya University College for the academic year 2016-2017 in 13 of them (8) humanities and (5) scientific, and the total number of students (22820) with (12361) students and (10459) by gender, as in table (1).

Table (1). The research community (Mustansiriya University students) divided by gender and specialization.

Sequence	College Name	Specialization	Number of students		Total
			Male	Females	
1	Medicine	Scientific Research	477	868	1345
2	Dentist		130	221	351
3	the pharmacy		134	314	448
4	Engineering		606	850	1456
5	Science		1375	774	2149
6	Basic Education	Human Rights	1478	2093	3571
7	Arts		2931	1547	4478
8	education		2138	1989	4127
9	Administration and Economics		2007	1062	3069
10	Law		538	482	1020
11	Political Science		327	240	567
12	physical education		220	19	239
Grand total			12361	10459	22820

The current research sample consists of (400) students. The sample was randomized according to the random cluster method. The 400 students were divided according to gender (200) students and (200) students, divided according to the humanitarian specialization with (200) students and scientific

specialization by 200 students. Namely education, literature, engineering and science, and Table (2) illustrates this.

Table (2). Sample of the research distributed by college, gender and specialization

the college	Specialization	Sex		Total
		Males	Females	
Education	Humanitarian assistance	50	50	100
Arts	Humanitarian assistance	50	50	100
Engineering	Scientific research	50	50	100
Science	Scientific research	50	50	100
Total		200	200	400

The research tool is a standardized method of measuring a sample of behavior, and the selection of the tool is important to identify the property to be measured (Anastasi, 1976: 15).

In the research, two measures were used: the measure of the management of cognitive information and cognitive overlap.

3.1 The measure of management of cognitive information:

Adoption of the measure of management of cognitive information for (Musawi 2011) in the final form, which consists of (33) paragraph, adopting the method (Likart Likert) in the measurement, the status of the fifth runway of alternatives to answer the scale (apply to me exactly, The researchers used the method of retesting and the coefficient of stability (0.81), the equation of Alpha Cronbach and the coefficient of stability (0.74), the road (0.75).

3.2 The discriminatory power of paragraphs:

The purpose of the discriminatory power of paragraphs is their ability to distinguish between the highest and lowest levels of individuals in relation to the attributed measured by the paragraph (Shaw, 1967, p. 45). Through the following two methods:

A. Method of management of cognitive information was applied to a sample of 400 students from Mustansiriya University in scientific and human subjects. After correcting the scores of each individual on the scale and finding the total score. Using the method of the two terminal groups, 27% of the students 'grades were obtained, representing the top group and 27% of the students' grades. The group represents 108 students. Significance Between the mean of the upper and lower groups. The calculated T value was an indicator for distinguishing each paragraph by comparing it with the table value (1.96)

with a level of 0.05 and with a freedom degree. 214 The test results showed that all the paragraphs of the scale are as distinct in Table (3).

Table (3). Parameters of the measures of the management of cognitive information in the form of two terminal samples

sequence	High Group		The lower group		Calculated T value
	Arithmetic mean	standard deviation	Arithmetic mean	standard deviation	
1	4,54	0,719	3,56	1,208	5,130
2	4,89	0,317	3,54	1,128	8,479
3	4,80	0,528	3,37	1,087	8,674
4	4,61	0,685	3,07	1,061	8,943
5	4,33	0,911	3,22	1,254	5,268
6	4,63	0,917	3,31	1,130	6,639
7	3,59	1,367	2,78	1,355	3,111
8	4,41	0,813	3,41	1,125	5,295
9	4,20	1,053	2,57	1,253	7,317
10	4,56	0,744	3,17	1,129	7,551
11	4,61	0,656	3,09	1,086	8,792
12	3,98	1,310	2,74	1,277	4,984
13	4,85	0,408	3,39	1,220	8,360
14	4,76	0,671	3,07	1,344	8,244
15	4,44	1,003	3,28	1,295	5,235
16	4,85	0,492	3,30	1,093	9,541
17	4,80	0,528	3,17	1,161	9,387
18	4,52	0,947	3,20	1,279	6,071
19	4,76	0,581	3,24	1,243	8,134
20	4,78	0,572	2,91	1,033	11,642
21	4,72	0,564	3,17	1,129	9,062
22	4,76	0,581	2,76	1,181	11,171
23	4,63	0,560	3,06	1,123	9,220
24	4,67	0,644	3,13	1,304	7,767
25	4,65	0,781	3,19	1,245	7,315
26	3,11	1,538	2,09	1,404	3,594
27	4,24	0,950	3,09	1,321	5,184
28	4,56	0,664	2,80	1,105	10,028
29	4,02	1,310	2,89	1,239	4,604
30	4,80	0,528	3,15	1,235	9,019
31	4,54	0,794	3,17	1,240	6,839
32	3,91	1,233	2,89	1,239	4,283
33	4,82	0,734	3,70	1,159	8,496

The table T value is (1.96) at (0.05) and the freedom level (214)

B. This method is the best method used to calculate the internal consistency of the standard clauses (Esawi, 1985: 95). The use of the degree

of relation of the paragraph to the total student score on the scale shows the strength of the paragraph's relation to the scale, On the assumption that the paragraph measures the part measured by the whole scale, and that the measure by which the paragraphs are selected accordingly is sincere in its construction.

The researchers used the Pearson correlation coefficient to extract the coefficient of correlation between the scores of each paragraph and the total degree of the individual on the scale. Statistical function (0.098) at a significance level (0.05) and a degree of freedom (398).

3.3 Cykometric properties of the scale:

The scale should have some basic cykometric characteristics, the most important of which is its sincerity and the stability of its degrees (Alam, 2000: 184), Because the measurement process requires the availability of many conditions in the construction of the tool for this confirms the measurement scientists need to verify the validity of the scale and stability, and researchers have verified the validity of the scale and stability through:

- Honesty virtual: The researchers presented the scale to a group of experts and arbitrators in the field of education and psychology has been adopted value of the percentage criterion for the opinion of the arbitrators on the validity of the scale or not, and the ratio was the acceptance rate of all paragraphs 100%.
- Validation of construction: The validity of the construction of the scale depends on the method of the relationship of the degree of the paragraph to the overall degree of the scale, and the correlation of the degree of each paragraph in the field to which it belongs, which represents one of the indicators of the validity of the building and represent the structural honesty by the following methods discrimination paragraphs (Anastasi,1979).

3.4 Stability of the scale:

The researchers relied on the method of testing and retest in the extraction of stability. A sample of (100) male and female students from Al Mustansiriya University (Faculty of Education Education) and (Science) was selected. The test was repeated after two weeks of the first application. The stability of the scale was calculated using Pearson correlation coefficient. Stability (0.81). This value is an acceptable indicator of the stability of respondents' responses to the KMI and statistical significance at (0.05).

3.5 The cognitive interference scale:

The adoption of the cognitive interference scale of (Shammari 2015), consists of (36) paragraph and includes two areas, the field of ideas related to tasks (18) paragraphs, and the field of ideas unrelated to the tasks (18) The

lowest grade to the highest grade (36-180), and the average mean of the scale (108).

3.6 Statistical Analysis of the Cognitive Interference Scale:

The discriminatory power of the paragraphs: For the purpose of extracting the discriminatory power of the paragraphs and excluding the non-distinguishing paragraphs, the overall scores obtained by the respondents were ranked from the highest degree to the lowest, and 27% of the answers representing the highest grades and 27% (27%) of the sample size of (400) students. The researcher used the T-test for two independent samples to determine the statistical significance between the upper and lower groups of the two groups. The calculated T value is an indicator of GDP (1.96) at the level of significance (0.05) and the degree of freedom (214). The result of the analysis showed that all the paragraphs of the scale are distinct.

Validation of the scale: The validity of the scale has been verified by the correlation coefficient of the degree of the paragraph in the overall degree of the measure: Pearson correlation coefficient was used to extract the coefficient of correlation between the degree of each paragraph and the total score of the sample. All correlation coefficients were found to be statistically significant when compared with the table value (0.098) at the level of significance (0.05). This is a good indication of the veracity of the paragraphs and that the measure is honest to measure the phenomenon.

3.7 The cykometric characteristics of the cognitive interference scale:

1. Authentic honesty: The apparent honesty of the scale was achieved by presenting it to a group of arbitrators and experts in the field of psychology to judge the veracity of the paragraphs. The researchers adopted a percentage criterion for the experts' opinions on the validity of the scale or not and the acceptance rate for all paragraphs (100%).
2. The validity of the building: The validity of the building was verified in a way that relates the degree of the paragraph to the overall degree of the scale, and the method of linking the degree of the paragraph to the degree of the field (Rabeea, 1994).

As for the stability indicators, the stability of the cognitive interference scale was verified by:

- Testing and re-testing: The stability of the scale was verified by applying it to a sample of (100) students, in a time interval (two weeks) between the two applications, and then using Pearson correlation coefficient between the two application grades High.
- Statistical means: For the purpose of achieving the objectives of the research, the use of the appropriate statistical means in this research using the statistical bag for social sciences (SPSS).

4. Results and discussions:

This chapter will include a presentation and explanation of the results according to the research objectives, and the most important recommendations and proposals.

Objective 1: For the purpose of knowing the significance of the difference in the management of cognitive information among university students, the T-test was used for one sample as shown in Table (4).

Table (4). T - Value, mean mean and arithmetic average of the variable cognitive information management.

the sample	SMA	Medium-premise	standard deviation	calculated value	Table Value	Level of significance
400	124,57	99	16,54	31,30	1, 96	0,05

The results show that there is a statistically significant difference in favor of the research sample, which means that the research sample has a knowledge management of the information they receive in their studies. The researchers attribute this result to the good academic preparation and their experience and ability to manage many psychological, social and cognitive problems. Sound, and control behavior in many positions and their ability to take responsibility for future goals. This finding is consistent with the concepts of Pandora's cognitive theory, in which he emphasized that individuals have the ability to manage their behavior by observing, responding to, and responding to their behavior (Bandura, 1991: 288).

The second objective: In order to identify the differences of statistical significance in the cognitive information tool for variables (sex and specialization),the analysis of the binary variance was used as shown in Table (5).

Table (5). Mean and standard deviation of sample members by sex and specialization for knowledge management.

Sex	Jurisdiction	Average	standard deviation	Number of sample members
Males	**Scientific**	**106.00**	**12.75**	**62**
	Humanitarian	**103.79**	**19.25**	**107**
	Total	**104.60**	**17.15**	**169**
Females	**Scientific**	**106.01**	**15.29**	**94**
	Humanitarian	**112.09**	**15.77**	**137**
	Total	**109.62**	**15.83**	**231**
Specialization	**Scientific**	**106.00**	**14.29**	**156**
	Humanitarian	**108.45**	**17.83**	**244**
	Total	**107.50**	**16.57**	**400**

A - Sex variable (males, females): The result shows that the average female is higher than the average male.
B - Variable competence (scientific, human): The result shows that the average human competence is higher than the average scientific competence, and the summary of analysis of the binary variance is shown in Table (6).

Table (6) Summary of analysis of binary variance according to sex and specialization variables.

Source of Contrast	Total squares	Degree of freedom	Average squares	Nutritional value	Significance
Sex	**2558.302**	**1**	**2558.302**	**9.542**	**0.002**
specialization	**670.107**	**1**	**670.107**	**2.499**	**0.115**
Between groups	**106442.437**	**397**	**268.117**		
Total	**109670.846**	**399**			

The results showed that there were differences between males and females and that females outperformed males in knowledge management. This difference can be attributed to the nature and characteristics of the female sex because of the excellence in controlling the management and organization of information, and therefore the girls resort to the use of strategies and methods that help them to memorize and remember all details of the situation or event. The results showed no statistically significant differences between scientific specialization and human competence in the level of knowledge management. This result can be explained by Bandroa's assertion of the role of an expert in the management and organization of cognitive information and because the scientific and human subjects are in the same school stage, ie they have the same level of information management and organization as they have the same abilities and skills.

The third objective was to identify the cognitive interaction of the university students. After the verification, it was found that the calculated T value (8.22) is greater than the T-table value (1.96) at the level of significance (0.05) and the degree of freedom (399). During test situations with ideas outside the test context or lack of experience in managing their own resources Table (7) illustrates this.

Table (7) Arithmetic mean, standard deviation and T value of cognitive interference scale.

The sample	The middle Arithmetic	Deviatio Normative approach	The middle Theoretical	T value Calculated	T value Table	Level of significance
400	113.43	13.23	108	8.22	1.960	Mark

Objective 4: In order to identify the differences in the degree of cognitive overlap among university students according to sex and specialization variables, the mean and standard deviations of the scores of the sample were obtained in the degree of cognitive overlap, as shown in Table (8).

Table (8): The arithmetic averages and the standard deviations of the scores of the sample in the degree of cognitive overlap according to gender variables and the academic specialization.

Study specialization	Sex		the sample	SMA	standard deviation
Scientific	Male	100	400	136.22	9.175
	Females	100		132.41	21.943
Total		200		134.32	16.884
Literary	Male	100		111.49	12.897
	Females	100		109.88	17.881
Total		200		110.68	15.571
total summation 400 Student					

In order to determine the difference in the level of cognitive interaction according to sex variables and the study specialization, the analysis of the binary interaction was used. Table (9) shows this.

Table (9) Differences in the cognitive interaction according to sex variables and the academic specialization and interaction between them using the analysis of binary variance

Source of Contrast	Total squares	Degree of freedom	Average The squares	Alphanumeric value Calculated	Level Significance
Sex	734.410	1	734.410	2.793	Not mark
Study specialization	55837	1	55837	212.358	Mark
Sex × Study specialization	121	1	121	0.460	Not mark
The error	104122.900	396	262.937		
Total	160815.31	399			

- A. The effect of sex (male and female): The results showed that there are no differences between males and females in the level of cognitive overlap because they are subject to the same sources of cognitive overlap and that the cognitive process is one and the same and is not related to individual differences of both sexes (male-female)
- B-The results showed that the difference between the average scores of human and scientific specialization is statistically significant for the scientific specialization. The researchers attribute this finding to the fact that the nature of the academic subjects in the scientific disciplines is more complex than the human specialties and requires high interpolation

The results and expectations of failure and success are high and sharp, or to the nature of questions in scientific materials that require advanced cognitive activities such as relations and problem solving, or may be attributed to the fact that the courses of scientific specialization more difficult and complex and accurate and difficult to deal with them constructively And requires strong motivation towards technical learning.

Objective 5: To determine the nature and direction of the relationship between the management of cognitive information and the cognitive interaction of university students, the computational and standard deviations of the total sample were calculated on the two variables and the correlation between them was calculated as in Table (10).

Table (10) Relationship between the management of cognitive information and cognitive overlap.

the sample	the number	Variable	Arithmetic mean	standard deviation	Coefficient of correlation
the college	400	Knowledge Management	124.67	16.54	0,44-
		Cognitive Interference	133.43	13.23	

Conclusion

In the light of the findings of the current research, the researchers conclude:

1. University students possess knowledge management in males and females and in scientific and human specialization.
2. University students suffer from cognitive overlap during their exams.

3-Knowledge overlap is more pronounced in the scientific disciplines and this affects their academic performance.

I would recommend paying attention to students to provide psychological and educational support to ensure the reduction of cognitive overlap, instructing teachers to increase students' awareness of their knowledge management, instructing students to use strategic and

administrative processes for their knowledge and organize them effectively, rreparing teachers to take the modern educational techniques and interest in curriculum development and educating students about the methods of recollection and training them on strategies of refocusing. Other studies would also be required, such as the relationship between knowledge management and other variables.

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Education as a Strategy for Sustainability in the 21st Century: Teachers as Creators of Educational Change

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Abstract

We are part of a globalized world that is reflected in problems associated with the development of the various dimensions of human endeavor. Intellectuals and scientists, who explain the complexity of the 21st century, emphasized on the fact that human beings swing between a strong consumer tendency and the capture of immediacy. There is a need for an ideal interconnected to values and ongoing actions tending towards sustainability. This is with the aim of legitimizing the various dimensions of human development where education forms a determining part. Taking into account the mentioned context, this work reflects on the work of the teacher, a key piece in the formation of students and institutional view. The literature will be reviewed and practical strategies will be proposed and focused on strengthening human understanding in global complexity. This is because teachers are expected to become the strategists that avert the great challenges faced by education in the 21st century global society.

Keywords: Education, Sustainability, Teaching practice, Social transitions.

Introduction

In a look that is positioned beyond the first group of socialization such as the family, this proposal reflects on teaching practice. However, this is because teachers are the ones who have the power to influence, on a daily basis and for hours, the knowledge and the reactions of the school community, against the daily context, and inside and outside the educational institution.

In the last decades, they have focused on bringing to the stage of dialogue and citizen debate issues such as exclusion, harassment, and discrimination. Issues that are installed under the name of "bullying", reflect actions of rejection against the "other" and its consequence has a negative impact on classroom environment.

For this reason, it is worth analyzing, when reflecting on education, what are the concrete strategies which work to achieve a view towards sustainability - understood as welfare and quality of life - and are they sufficient to cover the long term? Or will it simply depend on the particular and individual look of each teacher in the classroom?

Since it is beyond general policies and regulations regarding the rights that each human being possesses, there are conditions that do not allow the coexistence with inclusion and respect that each human being needs to develop fully. Consequently, educational policy strategies require a concrete and real intervention practice that model the particularities and guide towards the solidarity and the well-being of students. This therefore is aimed at making learning to be integral and sustainable. However, while the time comes for institutions to establish the policies that are urgent today, teachers should be ahead of the times because the work day requires it.

Education is a strategy that goes beyond knowledge in school subjects. Therefore, it is fundamental to maintain the updated professional development of teachers in the different dimensions of human development. Focusing on broadening the circle of action aimed at dialogue about one's own teaching practice and the context in which it develops, it is a debate that requires contexts that recover it for its update based on the benefit of our globalized educational community.

The greatest challenge is faced by teachers and professors as they are the ones who deal directly with students in the classrooms. These students have different mindset and perception based on how they grew up. Teachers are the ones who interact from Monday to Friday for several hours, with an average of 30 students which is equivalent to 30 families with different backgrounds and problems.

Even when it is difficult to break the siege of the first group of socialization which is the family, the teacher plays a significant role in bringing transformation in the society beginning from his or her own classroom.

Literature Review

What is Quality in Education?

In the 21st century, competencies refers to the need to cover all areas of human development in terms of social, family, personal and in the case of higher education, insertion into the labor world. Therefore, in addition to reading-writing and logic-mathematics, skills such as critical thinking, creativity, collaboration, computer thinking, and problem solving stand out.

Under the main premise of continuous and lifelong learning, the aim is to achieve equitable and inclusive education. This is both in terms of

intercultural dialogue and gender perspective, as well as the relationship with minorities generated by race, religion, migration, and sexual preference.

When there is a perception that there are "others", embodied in different cultures and customs associated with unique processes of historical construction, at least two are the paths to take: understanding or rejection, both with their nuances. If a respectful interaction is achieved in the school environment, a fact as basic as respect for human rights will have regained its initial vision.

The daily work in the teaching of values, attitudes, and aptitudes towards sustainability will be reflected in the classroom and, above all, during recess time which is a symbol of freedom and interaction between peers with absence of constant adult supervision.

Preparing for the transitions that happen in these times is the ideal. However, in school practice, there will always be winding and paved paths to go through.

Every Day towards Sustainability

In 1987, the United Nations Organization presented the report of the World Commission on Environment and Development, entitled "Our Common Future". Consequently, this is now known as the "Brundtland Report" in honor of its president, Gro Harlem Brundtland. It gives the world the definition of sustainable development for which “humanity has the ability to make sure that it meets the needs of the present without compromising the ability of future generations to meet their own needs” (UN, 1987). The document highlights the close relationship between poverty and its consequences: “Poverty is not only an evil in itself, but sustainable development requires meeting the basic needs of all and extending to the opportunity to fulfill their aspirations for a better life. The world in which poverty is endemic will always be prone to ecological and other catastrophes” (UN, 1987: 16).

The initial look at the need for sustainability applicable to development was initially associated with ecological issues as well as the control of world hunger and poverty. This is in addition to economic growth between first world countries and the rest of the world.

Over the years, the concept has expanded its horizons. Currently and based on the Sustainable Development Objectives promoted by the UN from 2015, and in the face of Agenda 2030, sustainability must be a priority in everyday life and in different areas of social work, whether in health, education, labor market, industrial world, institutional spaces, economy, and issues such as gender equality, reduction of inequalities, terrestrial ecosystems and underwater life, climate change, and drinking water for all.

Peace, justice, and well-being in planetary life are terms of an irrevocable negotiation towards the next years. Hence, they should at least be reflected in the statements signed by the so-called member countries.

Furthermore, there are 17 Sustainable Development Goals (SDGs). The SDG related to Education aims to "ensure inclusive and quality education for all and promote lifelong learning" (UN, 2015).

Inclusion and equality are the dominant concepts in policies that should guide the educational dimension. Minorities, including people with disabilities, indigenous peoples, refugees, and migrants as well as rural communities, are the cornerstone on which to base strategies for sustainability.

One of the goals by 2030 is to ensure that all learners acquire the knowledge and skills needed to promote sustainable development. Through education, students will be able to think about sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity, and appreciation of the contribution of culture towards sustainable development (UN, 2015).

According to this SDG, a key point is that the daily purpose in the classroom will consist of generating strategies that will turn students into representatives and promoters of actions tending towards sustainability, in a school and family environment. As a result, it is essential to look into the concrete meaning of a culture of peace, non-violence, appreciation of diversity and the culture of "No bullying inside and outside of the classroom".

Therefore, what steps could be taken in the face of a situation in which, according to social scientists, immediate violence, insecurity, and difficulty in dialogue prevails?

21st Century Societies

Edgar Morin, Zigmunt Bauman, Noam Chomsky and Boaventura De Sousa Santos, each from different contexts, agree that the impact of actions and policies has a direct or indirect impact on the global order.

Zigmunt Bauman, Polish sociologist and father of the paradigm of "Liquid Modernity", raises the need to learn to live in a world saturated with information. However, any delay is a stigma of inferiority, and success depends on achieving instant gratifications without any delay. He stated that, in liquid societies, the prospect of thinking about something that lasts a lifetime is disdained, since things and bonds are expected to last for a time and then be discarded. So, at the end, everything is scheduled, even obsolescence (2007).

As for the tendency of education, the objectives are placed in the achievement of products and not as an ongoing process of learning, for which "we must learn the even more difficult art of preparing the new generations to live in such a world" (Bauman, 2007: 41).

Chomsky (2001) points out that, even in the 21st century, the school, as an institution, exercises a control system that gives prevalence of obedience towards power structures. Hence, a reason for (un) education arises as it does not strengthen the critical and democratic reflection of students.

Boaventura De Sousa Santos (2015) enunciates, through the "ecology of knowledge", an educational proposal that is associated with action research, as a way of deepening the social changes. This researcher highlights that teachers are trapped in a labyrinth between scientific knowledge and the discourses of everyday life.

Consequently, the crossroads meet between transiting dialogues or remains indifferent or even elusive to listen to complexity through their various sounds proposed by the ecology of knowledge. This is regarded as "a set of practices that promote a new active coexistence of knowledge with the assumption that all of them, including scientific knowledge, can be enriched in this dialogue"(Santos, 2015, p 129).

The complexity of the current situation must be worked together with the components that make up the universal whole, regardless of the human development dimension to be addressed. Therefore, in the case of education in particular, knowledge must be integrated to strengthen the comprehensive training of students from the earliest age.

This active intervention in the classroom, based on the fulfillment of the Sustainable Development Goals, is the one that will allow the cultural encounters, the dialogue of knowledge, and tenacity in the continuous search for knowledge. This is because as a butterfly effect, a little initial change in any part of the world will have an unimaginable and unpredictable impact on the planetary system.

Theoretical Perspectives

Education in Complex Societies

Edgar Morin highlights that the figure of the teacher is decisive for the consolidation of an ideal model of education since the teacher "must be the orchestra director who observes the flow of knowledge and solves students' doubts" (2014). Teachers are the holders of a social mission since they are educators of public opinion and future citizens. They need to be aware of the mission. Therefore, it is vital that they articulate their basic academic knowledge with other disciplines to dialogue with other fields of knowledge and, thus, be able to reflect with the students about the complexity of the current world, its past, and the future that they should build.

In this context, educators require extensive general cultural training and knowledge of the major issues surrounding our century in terms of religious and racial conflicts, uncertainty and possible projections in the world of politics and economics. Under this perspective, their strategy will be to

reflect on human understanding since "the great problem of humanity is that we are all identical and different and we need to deal with those two ideas that are not compatible" (Morin, 2014).

In the school curriculum in particular, fragmented education through the disciplines, which are presented by subjects, leads to a reductionism contrary to the understanding of the complexity of reality. This therefore is articulated in all dimensions of human events. The strategy is to combine reason and rational control with emotion and passion.

Edgar Morin argues that there is a disarticulation between the fragmented knowledge of disciplines and the multidimensional and transnational realities of the Planetary Age whose essential problems are "never fragmented and global problems are each more essential" (2002, 13).

The complexity of our lives as a species requires continuous analysis and reflective processes that must be carried out by teachers in order to be able to transmit them into the school environment. This is an ideal space to explain the processes by which the problems of life, environment, violence, migration or poverty are shared globally since "Every person who takes on educational responsibilities must be ready to go to the forward posts of uncertainty in our times" (Morin, 1999: 3).

It is crucial that each human member in the school community has the ability to achieve an individual look that responds to rules in particular societies and as a member of a larger species: human beings. Teachers are the strategists to become a citizen of the Earth, with ethics and defender of democratic ideals and with a permanent self-examination (Morin, 2011: 262). This would help them to become aware of their own attitudes and aptitudes to understand others, respect and function positively as supportive members of a school community since "Ethics must take shape in people's minds through awareness that a human being is at one and the same time an individual, a member of a society, a member of a species (…) All truly human development must include joint development of individual autonomy, community participation, and awareness of belonging to the human species" (Morin, 1999:4).

Ethics and sustainability are concepts closely linked to the theory of complexity which is completed when the theory is applied in a concrete project in solidarity and visible benefit of a community or social group for which work is based on "action research".

Another concept that is articulated in order to give priority to dialogue and human understanding is that of moral culture. In the same definition, it was pointed out that it focuses on the integral analysis of the contexts and the consequent practical application of the decisions taken.

Therefore, in terms of education, moral culture should be emphasized as a process aimed at sustainability. Schools are currently too busy with

standardized testing and in preparing students to meet the standards that they overlook, and also the moral culture that children need to strive in life.

According to Puig (2011), "Moral culture is what is done in the institution. It is the set of educational practices that forms the complex system of dispositions, actions, and activities of the educational institution. We will argue that moral culture is a global quality of complex institutions resulting from its system of educational practices and the world of values it creates"(p.6).

When moral culture does not hold up, external social problems filter into educational institutions and produce turmoil in teaching-learning strategies and processes. Moreover, it deepens the problem associated with the hidden curriculum of each teacher.

In traditional pedagogy, moral culture was based on discipline. At present, these set of practices that supports moral culture, produces a synthesis effect that is constructed on the citizen culture with affection, reflection, and action are the three major vectors used by teachers to operate the practices to produce transformations in apprentices. All of these practices are done through dialogues and by listening to each other.

Probably one of the best ways of acquiring virtues is by participating with peers and with the help of an adult in a practice that expresses values. When a class works for projects, what they do in common, the "experiences of reflection and the emotions that live are recording virtuous habits in the character of each participant student"(p.9).

One of the issues that many times schools and classroom teachers fail to acknowledge is bullying among children. Many teachers believe that bullying is a normal part of childhood and they do not do anything about it.

However, the notion children have is that it is acceptable to step on each other, and the targets of bullies learn a helpless attitude towards those in power. Consequently, it is important that schools acknowledge the effects of bullying and do something about it. At the same time, teachers have to deal with this issue as well as any other issues that empower a student to feel superior over others.

Self-esteem should be encouraged in the classroom every day, to let students know that school is a pleasant place, where they can find people that care for them and respect them for who they are. Children learn their prejudices from their families and take them to school. In school, their prejudices are reinforced by teachers, classmates, staff, and the society in general.

Therefore, it should be the school's responsibility to teach students moral culture to break the cycle of intolerant behavior and injustice. Activities that call for multiculturalism in which students can learn from each other and value each other's differences and similarities should be promoted every day.

By creating an equitable classroom, teachers would be teaching students to stand up for themselves whenever they face injustice and to join those who share the same beliefs to take action. Children would then grow up to be good human beings that care for the needs of others and would become the good citizens that every nation needs.

Strategies for Creating an Equitable Classroom

Teachers can use affective activities in the classroom. Affective activities will help students reduce anxiety and feel more comfortable in class interactions. According to Amato (2003), affective activities in the classroom "help students reach an understanding of those beliefs and behaviors that give meaning to their lives" (p. 295). Furthermore, these activities provide interactions in the target language and, at the same time, bring students closer together.

Those who feel less assertive, embarrassed, or intimidated in class can gain confidence with these activities and feel free to participate and share with the whole class.

It is important that at the beginning of the course, students and teachers should get to know each other. It is scary to participate in a class with members that you know nothing about. One activity that can be implemented at the beginning of the course is "find someone who." In this activity, students mingle around the room to find a person who meets the criteria specified in the handout and ask the person to sign his or her name. This helps break the ice and, at the same time, students get to know more about each other.

Another activity for the first class is learning each other's names by having the second student repeat the first student's name and have a third repeat the first and second student's name and so on. Later, students can interview one another before introducing the new friend to the class. If this type of activities continues as the course progresses, students will feel more comfortable in sharing their values and cultures. Therefore, this will be seen as a learning experience for everybody as they will learn to respect and value each other's differences and similarities. By carrying out these activities on a regular basis, it will allow dialogue on common themes that have a significant impact on the reality of the classroom as well as on the extracurricular space, whether at the family level or that are reflected in the media.

In addition, to foster multiculturalism, the "culture bag" or "me bag" can be implemented on a daily basis. Here, every class one student brings a paper bag decorated to represent what students like or consider important in their lives and cultures. Inside the bag, students place five objects that symbolize who they are, what they value, what they like, and what defines them as a person. This requires a lot of self-reflection and creativity in order to represent identity with small concrete objects that can be placed inside a

bag. One student begins the class by showing and talking about each object. This activity fosters an attitude of pride in oneself and respect for others as they get to know each other, find shared similarities, and value the differences that make them unique.

It is the teacher's job to create a comfortable and non-threatening learning environment where all students feel safe to share their views. Furthermore, the teacher has to ensure that everybody is represented in the classroom. The classroom must display the work of all students. Students can bring pictures of the things they value and have their own spot on a wall or bulletin board where everybody can see. Students can then discuss why they chose to display that particular object.

Teaching by tapping on multiple intelligences is also beneficial to create a positive classroom environment. Using this strategy will promote more participation in the classroom since the lesson may be aimed to someone with a different learning style. Adding music, games, puzzles, role play, drama, and debates can trigger the excitement and motivation of students to participate more in class.

Different grouping arrangements must take place during instruction to give learners the opportunity to feel more comfortable and speak freely. Christison (1995) describes classroom grouping arrangements as: restructuring/mixers, one centered, unified centered, dyad, small group and large group.

Subsequently, these six strategies for seating arrangements must take place on a regular basis to give all students an opportunity to learn from each other and to stay away from the traditional teacher center classroom. Classroom interaction can be enriched by using different collaborative groups that allow for cooperative learning.

Error correction needs to take place subtlety in language classes. Many fear being interrupted and if the interruption is to let them know about their errors in the target language, students will feel anxious, intimidated, and will eventually refrain from participating. Richard Amato (2003) cites research done in the area of error correction that shows that "increased direct error correction does not lead to greater accuracy in the target language" (pp. 56-57). Therefore, if error correction is to take place in the classroom, it should be done in the form of negative evidence and recast.

Teachers need to make an effort in making sure that all students have an opportunity to participate. In a whole class grouping, this can be achieved by the use of wooden popsicle sticks with the names of students in the class. Even shy students will participate when their name is called. The attention span of students increases when they know they might be asked to participate. This assures everybody a fair chance to participate.

Teachers also need to be aware of their action zone. The action zone, according to Richards and Lockhart (1994), is the teachers' interaction with only a few students in the class. "An action zone is indicated by: those students with whom the teacher regularly enters into eye contact; those students to whom the teacher addresses questions, and those students who are nominated to take an active part in the lesson" (p. 139).

Once teachers are aware of their action zone, they can move around the room or have different areas in the room where they deliver instruction as opposed to the traditional teacher controlled classroom.

It is important to provide a silent period before students are ready to answer questions. One activity that can be implemented in large and small groups is having a talking piece. Here, students sit in a circle facing each other and can speak only when they hold the talking piece.

Implementing these ideas leads to greater participation from all students and a positive and respectful environment where everyone is welcome and valued because we need to learn how to live together in the 21st century.

Conclusion

We live in a system that swings between what is fragmented and unchanging. This displacement is also perceived in education, between the disciplinary and a contextual reality interconnected worldwide.

We are guided by the indications that govern international treaties and the counterpoint of the weight of the media and the dominant economic emporiums. This fact makes it difficult to articulate an educational work towards sustainability. Even so, the path is linked to essential meanings that emphasize the inherent value of teaching and its mission for educating with quality according to the needs of each time period.

In the XXI century, acting in favor of inclusion is found in the platforms of mission and vision of institutions, as well as in curriculum objectives. It is well known that one should not discriminate, harass, generate violence - symbolic or physical - to make fun of others; at least, that is what is proclaimed from school textbooks and at parent meetings.

In every country, community, and society, adults are the ones who must be informed about everyday events and the processes that have led to a period of time. This is in a bid to have a personal reading with answers to stand firmly in one's personal life and everyday work. Information and communication technologies (ICTs) can be valid tools in the process of being citizens of the world or social illiterates. Teachers are part of the social group that must educate in the complexity of the present, thinking about the future.

In order to talk about sustainability, it is imperative for institutions to carry out work with teachers to guide them, culturally, technologically and

psychologically, towards a territory in which they can, by themselves, take an active look of respect for diversity. In the event that their first reaction is rejection, more tools to modify that perspective must be provided in order to face the challenges of the twenty-first century.

Thus, there is the need to implement a policy of responsibility in citizen education in each institution. This is done as a committed artificer with a work whose profile and strategies articulate sustainability, diversity, and interculturality. Furthermore, the teachers serve as helpers in the construction of a context of coexistence and real and verifiable inclusion, which is a lifelong learning for all.

Furthermore, it is a must to put into practice strategies for sustainability based on the complex reality worked qualitatively: tutoring, technical training, proximity to technologies, understanding of issues such as harassment, bullying, and school dropout.

We are part of a globalized world that is reflected in problems associated with the development of the various dimensions of human endeavor. Countries are classified, in terms of market values, in emerging, developed, and frontier. However, in educational matters, all have similar circumstances that can produce scenarios of discrimination, bullying or other types of aggressive practices. All this is confirmed by the intellectuals and scientists who explain the complexity of the 21st century.

As a result, it is crucial to generate educational practices based on moral culture. Ethics and understanding the complexity of human life is the ultimate goal. To this end, it is fundamental that the teacher as a helmsman should learn how to maneuver in turbulent waters, as well as understand that the best way to arrive at a good port is, first of all, to listen to all the participants in order to incorporate resources that strengthen values towards a sustainable way of living in this complex reality.

According to this proposal, it is imperative that teachers should become the strategists of education that lead to the great challenges of our 21st century global society. Work must be done to remember this affirmation as well as to provide practical strategies for school activities that work to transform the environment into pathways to a future in which sustainability is the reflection of human beings' awareness of their participation as responsible citizens of the Earth.

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