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Student Teachers' Perceptions of The Importance of Theory and Practice

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Abstract

Theories are constructed to give an explanation of phenomena (Stam, 2000). According to Denzin (1970), there are three functions of a theory: Permitting organization of descriptions, leading to explanation, and furnishing the basis for prediction of future events. In a preliminary study, 350 student teachers were requested to fill-out a questionnaire. They rated the importance of acquiring knowledge and skills using a 7-point scale (1: extremely not important, and 7: extremely important). The findings show that the participants regarded knowing "how to do" as more important than knowing "what they are doing" and "why they are doing it". In other words, they regarded learning skills to do something as more important than knowing the theory behind the practice. For instance, "Knowing theories on why students enjoy or not enjoy learning" (theory, M: 5.51, SD: 1.35) was scored significantly lower ($t= 13.96$, $p < 0.0001$) than "Making learning an enjoyable process for their students" (practice, M: 6.47, SD: 0.90). Implications of the study for teacher education are discussed in light of three functions of a theory. Teacher education should promote a balanced curriculum that narrows the gap between teachers' perceptions of theory and practice.

Introduction

Theories are constructed to give an explanation of phenomena (Stam, 2000). According to Denzin (1970), there are three functions of a theory: Permitting organization of descriptions, leading to explanation, and furnishing the basis for prediction of future events. Most researchers support the argument that theoretical explanations comprise the heart of science (e.g., Bengston, Burgess, & Parrott, 1997; Weis, 1998). Some may be doubtful about the relationship between theory and practice (e.g., Thomas, 1997). In education, most theories are borrowed from other disciplines such as psychology and sociology. As such, education encompasses a range of various kinds of theory (e.g., learning theory and critical theory) (Thomas, 1997), which can be uneven in nature (Cohen & Manion, 1989).

Skemp (1989) defined *relational understanding* as knowing both what to do and why, as compared to *instrumental understanding* which is applying rules (knowing what to do) without knowing the reasons (the why). For example, student teachers often comment that they

would like to have more practical strategies related to teaching mathematics (*instrumental understanding*) rather than the theories behind the strategies (*relational understanding*) (e.g., Ball, 1988, 1990; Hill, 1997).

This paper examines student teachers' perceptions of the importance of theory and practice. A survey was conducted to find out if student teachers view acquisition of theoretical knowledge (*relational understanding*) as more important than acquisition of practical skills (*instrumental understanding*).

Method

Participants

A total of 353 student teachers participated in a paper-and-pencil survey. Of the total, 286 (81%) were female, and 67 (19%) were male. The age of the participants ranged between 20 and 30 years. They were enrolled in a teacher-training programme at the National Institute of Education, Singapore.

Survey

We created a list of 67 items related to a course "Psychology of Pupil Development and the Learning Process" (<http://www.kmlim.asia.pageout.net>) that is taught at the National Institute of Education. The list included examining both the theories and implications of psychosocial development of children and adolescence, learning theories, creative and critical thinking skills and multiple intelligences (see Appendix A). The participants rated the importance of items on a 7 points scale, with anchors of 1: extremely not important and 7: extremely important. In the middle of the scale, "moderately important" was printed to avoid ambiguous responses such as "I do not know". Of these 67 items, 25 items formed 18 pairs describing theoretical and practical applications of the related theories.

Results

The means, standard deviations and results of paired t-test for the 18 pairs of items are shown in Table 1. Student teachers rated the practice items as being more important than the theory items for 16 of the 18 pairs of comparisons (t values ranged from 3.4 to 19.4, $p < .001$)

The only non-significant comparison between theory and practice is "know components of critical Thinking Skills" (Theory) (mean importance=5.79) and "use critical thinking in their teaching methods" (Practice)(mean importance=5.85), $t=1.1$, ns.

It is interesting to note that student teachers rated the theory (measure creativity in their students) as more important (mean=6.2) than the practice item (encourage creative thinking in their students) (mean=5.6) ($t=9.7$, $p < .0001$).

Table 1

Means, standard deviations and results of paired t-test

(#12) know components of critical Thinking Skills (#49) promote critical thinking in their students.	Theory Practice	5.8 6.0	1.1 1.0	3.4	***
(#12) know components of critical Thinking Skills. (#64) use critical thinking in their teaching methods.	Theory Practice	5.79 5.85	1.07 1.19	1.1	ns
(#36) measure creativity in their students (#18) encourage creative thinking in their students..	Theory Practice	6.2 5.6	1.0 1.3	9.7	****
(#27) know helping behaviours theories (#54) refer a student to a professional psychologist/counselor for further help.	Theory Practice	5.2 5.5	1.4 1.3	3.5	***
(#27) know helping behaviours theories. (#11) counsel a student with serious problems (e.g., substance abuse / drug problems).	Theory Practice	5.2 6.0	1.3 1.1	9.6	****
(#52) give reasons for aggressive behaviours. (#47) prevent and control aggressive behaviours.	Theory Practice	5.0 5.7	1.4 1.3	10.4	****
(#63) know theories on why students enjoy or do not enjoy learning. (#35) make learning an enjoyable process for their students	Theory Practice	5.5 6.5	1.4 0.9	14.0	****
(#32) know learning theories. (#26) help their students remember and transfer knowledge and learning	Theory Practice	5.3 5.8	1.4 1.2	6.3	****
(#27) know helping behaviours theories (#19) encourage helping behaviours / helpful attitudes in students	Theory Practice	5.2 6.3	1.4 1.0	15.7	****
(#53) provide reasons why people help or do not	Theory	4.8	1.5	19.3	****

help. (#19) encourage helping behaviours / helpful attitudes in students.	Practice	6.3	1.0		
(#40) know motivation theories	Theory	5.6	1.3	8.3	****
(#56) motivate their students.	Practice	6.2	1.1		
(#62) know theories on leadership	Theory	4.9	1.5	12.9	****
(#13) delegate leadership responsibility to their students.	Practice	5.9	1.0		
(#62) know theories on leadership.	Theory	4.9	1.5	16.8	****
(#31) lead the class effectively.	Practice	6.2	1.0		
(#62) know theories on leadership.	Theory	4.9	1.5	12.7	****
(#22) foster leadership skills in their students.	Practice	5.9	1.1		
(#30) understand language development.	Theory	5.3	1.3	10.1	****
(#20) enhance language development in their students	Practice	6.0	1.0		
(#59) know sources of power (theories).	Theory	4.5	1.6	19.4	****
(#31) lead the class effectively.	Practice	6.2	1.0		
(#59) know sources of power (theories).	Theory	4.5	1.6	17.2	****
(#13) delegate leadership responsibility to their students.	Practice	5.9	1.0		
(#59) know sources of power (theories).	Theory	4.5	1.6	16.6	****
(#22) foster leadership skills in their students	Practice	5.9	1.1		

***p<.001

****p<.0001

Discussion

In general, items describing theoretical knowledge acquisition were rated lower in importance than those describing acquisition of practical skills. For illustration, we cite one example. Although the participants considered it to be important to make learning an enjoyable process for the students (practical), they did not regard it to be important to

understand why students enjoy or not enjoy learning (theoretical) (see Table 1). This group of student teachers seems to prefer instrumental understanding: That is knowing what to do without knowing the reasons.

There are several possible reasons to explain this observation. In addition to the incoherent nature of theories in education or educational psychology, we hypothesize five other reasons. First, the curricular time allocated for educational psychology module is limited to less than 7% of the total contact hours of the teacher educational program. Second, the structure of the module on educational psychology gears toward practical aspects of teaching and learning. Third, teacher educators simplify theories to emphasize the practical applications of certain concepts. Fourth, there is insufficient curricular time to explain and clarify the importance of theories and their relationship to practice. Fifth, should a theory be introduced in a module, it often performs only one function, namely to explain a certain phenomenon. Two other functions, permitting organization of descriptions and predicting future events, of theories are usually neglected. It seems that the participants were exposed to curricular contents that encourage factual investigation. The development of a formal and scientific discipline requires factual, theoretical and conceptual investigations (c.f. Machado, Lourenco, & Silva, 2000). Likewise, teacher education should promote a balanced curriculum that highlights the importance of these three types of investigations, and to narrow the gap between teachers' perceptions of theory and practice.

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Appendix A

- (#1) assess their students' learning (other than using the traditional school tests/exams).
- (#2) attend Education conferences.
- (#3) understand attitudes of their students.
- (#4) be creative in how they teach.
- (#5) understand boy-girls relationships among their students.
- (#6) calculate statistics to analyze research data.
- (#7) know causal attributions of the students (how their students explained their successes and failures).
- (#8) be able to change the attitudes of their students.
- (#9) conduct a study to test the effectiveness of their own teaching methods.
- (#10) understand cooperative, competitive and individualistic learning environments.
- (#11) counsel a student with serious problems (e.g., substance abuse / drug problems).
- (#12) know components of critical Thinking Skills.
- (#13) delegate leadership responsibility to their students.
- (#14) design a questionnaire for research.
- (#15) develop a good and effective test for their students.
- (#16) know differences between compliance, conformity and obedience.
- (#17) understand effects of physiological impairments on learning.
- (#18) encourage creative thinking in their students.
- (#19) encourage helping behaviours / helpful attitudes in students.
- (#20) enhance language development in their students.
- (#21) know effects of the family on the students.
- (#22) foster leadership skills in their students.

- (#23) know functions of the parts of the brain.
- (#24) guide a student in career issues.
- (#25) help a student to deal with less serious psychological problems (e.g., test anxiety).
- (#26) help their students remember and transfer knowledge and learning.
- (#27) know helping behaviours theories.
- (#28) know history of formal education.
- (#29) know issues about prejudices and discrimination.
- (#30) understand language development.
- (#31) lead the class effectively.
- (#32) know learning theories.
- (#33) maintain discipline in their classroom.
- (#34) make decisions effectively.
- (#35) make learning an enjoyable process for their students.
- (#36) measure creativity in their students.
- (#37) understand metacognition skills (how to think about thinking)
- (#38) impart moral values of their students.
- (#39) know physiological development of children or adolescents.
- (#40) know motivation theories.
- (#41) name parts of the brain.
- (#42) understand peer influence on their students.
- (#43) know personality theories.
- (#44) know physiological components of the brain related to learning and memory.
- (#45) enhance self-concepts of their students.
- (#46) present a paper at an Education or psychology conference.
- (#47) prevent and control aggressive behaviours.
- (#48) understand process of developing friendships.

- (#49) promote critical thinking in their students.
- (#50) know psychological development of children or adolescents.
- (#51) read and understand scientific papers published in psychology or education journals.
- (#52) give reasons for aggressive behaviours.
- (#53) provide reasons why people help or do not help.
- (#54) refer a student to a professional psychologist/counselor for further help.
- (#55) know scientific method of conducting research.
- (#56) motivate their students.
- (#57) know scientific theories on intelligence.
- (#58) impart social values of the community.
- (#59) know sources of power (theories).
- (#60) teach a multicultural / diverse student population.
- (#61) know theoretical perspectives of psychology.
- (#62) know theories on leadership.
- (#63) know theories on why students enjoy or do not enjoy learning.
- (#64) use critical thinking in their teaching methods.
- (#65) use problem-based learning techniques (students decide the questions to ask, & how to learn)
- (#66) understand ways people function in groups.
- (#67) understand work effectively with the parents of their students.