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TRAINEE TEACHERS' PREFERENCES FOR MODES OF ASSESSMENT

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Abstract: This study examined the effects of locus of control on trainee teachers' preferences for modes of assessment. Sixty-five trainee teachers (22 from the Diploma in Education programme, and 43 from the Postgraduate Diploma in Education programme at the National Institute of Education, Singapore) reported their perceptions of control, time spent studying, and expectations of success. They also indicated their attitudes toward final examinations, multiple assignments, projects, and presentations as modes of assessing their academic performance. Participants most disliked final examination, reported the lowest perceived control for final examination and indicated they would learn the least from final examination based courses but expected final examination to play a major part in determining their grades. The only locus of control effects were on the amount of independent learning deemed necessary to achieve an "A" grade: Internals indicated more independent learning for final examination but least independent learning for project, as compared to externals. Implications for assessment modes are discussed.

Introduction

The Aptitude-Treatment Interaction (ATI) research approach examine the effects of individual difference factors (e.g., personality types) on effectiveness of instructional methods (e.g., Bracht, 1970; Berliner & Cahen, 1973). Although results from these studies have been generally conflicting, a number of personality factors (e.g., locus of control) were found to significantly influence the effectiveness of instructional methods.

Smith and Renzulli (1984) suggested that it is important and possible to match students' learning styles to instructional and assessment modes. Renzulli and Smith (1978) developed a 65-item questionnaire (*Learning Style Inventory (LSI)*) that assesses students' attitude toward forms of instructional methods (e.g., lecture, projects, discussion, and independent study). Although preferred learning styles did not influence student motivation, "students who were taught by their preferred method achieved better, were more interested in the subject matter, liked the way the subject was taught, and wanted to learn other school subjects in the same way" (Smith & Renzulli, 1984, p. 48).

Seaton, Vogel and Pell (1980) found that students preferred instructors who have doctoral degrees and several years of practical experience, who assigned students work that help students to learn a lot, grade on a normal "B" average curve, use discussion and questions format in class, and who are somewhat humorous. Students least preferred instructors who have doctoral degrees but no practical experience ('the new PhD'), who assign "busy work", who are hard graders, use primarily lecture and discourage questions, and are very serious in class.

Students' attitudes toward grades and motivation for success also influence their preferences for grading systems (Hanusa & Korn, 1975). Students who viewed success as being defined by grades preferred the traditional grading system as compared to a "pass-fail" grading system. Students who scored low on the "Flexibility" scale of the California Psychological Inventory also preferred the traditional grading system. Flexible persons are considered to be "more informal, more insightful,

more concerned about personal pleasure, and less concerned about occupational futures than inflexible persons" (Hanusa & Korn, 1975, p. 12).

Students' locus of control influence academic performance and preferences for grading systems. Externals generally believed that they have little or no control over their environment or life situations, while internals believed that their actions could influence their environment or life situations (Rotter, 1966; Lefcourt, 1981).

Externals set and achieved lower grades, reported higher anxiety during oral assessments and performed more poorly on a written examination than did internals (Allen, Giat & Cherney, 1976). Internals preferred and performed better in instructional settings which allow them to exercise some degree of control over the learning objectives, content and quantity of work (e.g., contract grading) (Allen, Giat & Cherney, 1976; Daniels & Stevens, 1976; Klein & Keller, 1990). Contract grading allows students to achieve specific grades as long as they complete the "contracted work" regardless of the performance of other students. This method of grading is different from the norm referenced grading in which students' grades are determined by their own level of performance and those of other students in the class. Grading systems influence students' interest in the course (Sarafino & DiMattia, 1978).

Objectives of Study

The present study attempted to examine the effects of locus of control on trainee teachers' preferences for 4 types of assessment methods:

- Single final written examination
- Single written project / term paper
- Multiple written small assignments
- Single class presentation.

It is predicted that internals would prefer assessment systems that offer a greater degree of control (i.e., project, presentation or assignments) as compared to final examinations.

Method

Participants

Sixty-five trainee teachers (22 from the Diploma in Education program, and 43 from the Post-Graduate Diploma in Education program) participated in this study. One participant did not complete the questionnaire, leaving a final sample size of 64.

Materials & Procedure

A questionnaire consisting of 14 items measuring perception of control, time spent studying, expectation of success, and attitudes toward 4 types of assessment modes (final examination, multiple assignments, project, and presentation) was used. This questionnaire was adapted from Polczynski (1977) and Vollmer (1986). The I, P, and C locus of control scale (Levenson, 1972) was also used. Participants were asked to complete the questionnaires. They were debriefed at the end of the sessions.

Results

Locus of Control Scale. The I, P and C locus of control scale measures 3 dimensions of locus of control: Internal Scale, Powerful Others Scale, and Chance Scale (Levenson, 1972). Each scale is assessed by 8 items (total of 24 items). The possible range on each scale is from 0 to 48, with higher scores indicating greater belief in the dimension of locus of control. A person's scores on all 3 scales could be low or high.

Internal Scale. The mean for the internal scale was 31.51 ($sd = 6.48$). This mean was used to divide the sample into internals and externals. There were 31 externals (48.4%) and 33 internals (51.6%). Only the Internal Scale scores were used to determine the locus of control (LOC) of the participants in this study. High scores indicate that participants believe that they have control over their own lives.

Chance Scale. The mean for the Chance Scale was 17.47 ($sd = 7.92$). Low scores indicate that participants do not believe that chance factors control their lives. The Internal Scale and Chance Scale scores were not correlated, $r = -.054$.

Powerful Others Scale. The mean for the Powerful Others was 19.2 ($sd = 8.7$). Low scores indicate that participants do not believe that powerful others control their lives. The Powerful Others Scale and Chance scores were significantly correlated, $r = .61$, $p < .01$, while the Powerful Others and Internal Scale scores were also significantly correlated, $r = .298$, $p < .05$.

Attitudes toward assessment modes. Participants were asked to indicate their attitudes toward each of the 4 assessment modes on a 4 points scale (with 1 being do not like it very much and 4 being liking it very much).

Final examination. Significantly more participants disliked final examination as a form of assessment, $\chi^2(3, N = 64) = 14.75$, $p < .001$.

Assignments. Significantly more participants liked multiple written assignments as a form of assessment, $\chi^2(3, N = 64) = 29.36$, $p < .001$.

Project. Significantly more participants liked written project as a form of assessment, $\chi^2(3, N = 64) = 21.88$, $p < .001$.

Presentation. Participants were somewhat equal in the preferences for presentations as a form of assessment, $\chi^2(3, N = 64) = 24.38$, $p < .001$.

Locus of control (LOC) and attitudes toward assessment modes. An assessment mode \times LOC repeated measure GLM analysis revealed a significant main effect for assessment mode, $F(3, 186) = 11.28$, $p < .001$. Participants most disliked final examination (mean = 2.03, $sd = .12$) as compared to assignments (mean = 2.86, $sd = .83$), presentation (mean = 2.63, $sd = .81$) and project as assessment modes (mean = 2.73, $sd = .86$). There were no significant differences between attitudes toward assignments, presentation and project. The main effect for LOC and the interaction were not significant (maximum $F = 3.49$).

Preferred Distribution of Grades of Modes of Assessment. Participants were asked to indicate their preference for distribution of marks for determining their course grades using the 4 modes of assessment. An assessment mode \times LOC repeated measure GLM analysis revealed a significant main effect for assessment mode, $F(3, 186) = 3.04$, $p < .05$. Participants indicated the lowest marks allocation for presentation (mean = 18.25%, $sd = 11.99$) as compared to examination (mean =

26.08%, $sd = 21.5$), assignments (mean = 27.27%, $sd = 19.15$), and project (mean = 28.28%, $sd = 17.1$). There were no significant differences between preferred marks allocations for examination, assignments and project. The main effect for LOC and the interaction were not significant (maximum $F = 1.33$).

Participants' preferences for mark allocations is not consistent with their attitudes toward the modes of assessment. They indicated the least liking for examination but yet indicated equal marks allocation for examination as for assignments and project. A possible factor for this trend is the common use of examinations as assessment modes: Students are used to taking examinations, and expect examinations to be part of the assessment method.

Perceived Control over Modes of Assessment. Answers to questions #1, 3, and 7 were combined to measure participants' perceived control (0 – 100% control) over the specific modes of assessment (Cronbach α for examination = .75, assignments = .44, project = .76, presentation = .85). An assessment mode x LOC repeated measure GLM analysis revealed a significant main effect for assessment mode, $F(3, 186) = 14.32, p < .001$. Participants indicated the highest perceived control for assignments (mean = 74.54%, $sd = 9.98$) as compared to examination (mean = 61.46%, $sd = 15.38$), presentation (mean = 66.13%, $sd = 15.24$), and project (mean = 68.28%, $sd = 13.95$). There were no significant difference between perceived control for presentation and project. Participants reported the lowest perceived control for examination. This is consistent with participants' low liking for examinations. The main effect for LOC and the interaction were not significant (maximum $F = .96$).

Time Spent in Study Activities. Answers to questions #2, 5, and 6 were combined to measure the amount of time spent in study activities (in hours per week) for the specific modes of assessment (Cronbach α for examination = .60, assignments = .68, project = .74, presentation = .62).

An assessment mode x LOC repeated measure GLM analysis did not reveal any significant main effects or interaction, (maximum $F = 2.3$). Participants' reported study time per week were: examination (mean = 10.08, $sd = 8.9$), assignment (mean = 10.01, $sd = 9.6$), project (mean = 9.86, $sd = 9.43$), and presentation (mean = 8.78, $sd = 9$).

Amount of Independent Learning. Participants were asked to indicate the amount of independent learning they would need to do (on a 6 points scale, with 1 being very little and 6 being very much) if they were to obtain an "A" grade for the course using the types of assessments.

An assessment mode x LOC repeated measure GLM analysis revealed a significant main effect for assessment mode, $F(3, 186) = 4.26, p < .05$. Participants indicated the greatest amount of needed independent learning for project (mean = 4.86, $sd = 1.08$) and for examination (mean = 4.92, $sd = 1.26$) as compared to assignments (mean = 4.42, $sd = 1.08$) and for presentation (mean = 4.48, $sd = 1.16$). There were no significant differences between needed independent learning for project and examination, and between assignments and presentation. However, these main effect should be qualified by the significant interaction, $F(3, 186) = 4.12, p < .01$. Internals reported that they would need to do more independent learning (mean = 5.29, $sd = 1.26$) for an examination as compared to externals (mean = 4.58, $sd = 1.52$). However, internals reported that they would need to do *less* independent learning for project (mean = 4.68, $sd = 1.22$) as compared to externals (mean = 4.68, $sd = .92$).

Amount of Material Learned. Participants were asked to indicate how much they expected to learn from the course / lecturer (on a 6 points scale, with 1 being very little and 6 being very much) if the types of assessments were used.

An assessment mode x LOC repeated measure GLM analysis revealed a significant main effect for assessment mode, $F(3, 186) = 10.91, p < .001$. Participants indicated that they would learn the most from courses using assignments (mean = 4.48, $sd = 1.11$) and the least learning from examination-based courses (mean = 3.42, $sd = 1.39$). There were no significant difference between project (mean = 3.8, $sd = 1.32$) and for presentation (mean = 3.96, $sd = 1.15$).

Discussion

Assessment is an important component of the teaching and learning environment. Black (1995) stated that assessment “ought to be built in to the design of the teaching from the start” (p. 269). Assessment plays both formative and summative roles: The effectiveness of both roles depends on how assessment is incorporate into the teaching design.

Assessment as a formative strategy could also be a useful tool in helping Singapore in achieving its objectives for its education system that include giving students more opportunities to acquire thinking and learning skills (The Straits Times, 1 July 1995), encouraging students to be creative, innovative and problem-solvers (The Straits Times, 29 May 1996), avoiding spoon-feeding students with material (The Straits Times, 6 July 1996), and developing creative thinking skills in students (The Straits Times, 27 February 1997).

This study found that trainee teachers most disliked final examination, reported the lowest perceived control for final examination and indicated they would learn the least from final examination-based courses but expected final examination to play a major part in determining their grades. This suggests that written final examinations are not the best assessment method in terms of fostering learning and thinking skills.

The only locus of control effects were on the amount of independent learning necessary to achieve an “A” grade: Internals indicated more independent learning for final examination but least independent learning for project, as compared to externals.

Although participants in this study indicated a high liking for presentation, they also indicated the lowest mark allocation for presentation in determining course grades. Participants indicated that they would learn the most from an assignment-based course. They also indicated the highest perceived control for assignment-based assessment system.

Conclusions

This study provided some basis for suggesting that final examinations as a form of summative assessment need to be re-evaluated in terms of its effectiveness. Final examinations by its nature are not very useful as formative assessments, as they are usually given at the end of course. Any formative feedback is therefore not useful in helping students to improve on their weaknesses.

References

- Allen, G. J., Giat, L., & Cherney, R. J. (1976). Locus of control, test anxiety, and student performance in a personalized instruction course. *Journal of Educational Psychology, 66*, 968-978.
- Berliner, D. C., & Cahen, L. S. (1973). Trait-treatment interaction and learning. *Review of Research in Education, 1*, 58-94.

- Black, P. (1995). Assessment and feedback in science education. *Studies in Educational Evaluation, 21*, 257-279.
- Bracht, G. H. (1970). Experimental factors related to aptitude-treatment interactions. *Review of Educational Research, 40*, 627-645.
- Creative thinking is Singapore target, says Teo Chee Hean. (1997, February 27). *The Straits Times*.
- Daniels, R. L., & Stevens, J. P. (1976). The interaction between the internal-external locus of control and two methods of college instruction. *American Educational Research Journal, 13*, 103-113.
- Education: Emphasis to shift to skills in thinking. (1995, July 1). *The Straits Times*.
- Hanusa, B. H., & Korn, J. H. (1975). Personality, academic, and motivational aspects of student preference for grading systems. *The Journal of Experimental Education, 43*, 6-12.
- How to separate bright students from 'exam smart' ones. (1996, July 6). *The Straits Times*.
- Klein, J. D., & Keller, J. M. (1990). Influence of student ability, locus of control, and type of instructional control on performance and confidence. *Journal of Educational Research, 83*, 140-146.
- Lefcourt, H. M. (Ed.). (1981). *Research with the locus of control construct* (Vol. 1). New York: Academic Press.
- Levenson, H. (1972). Distinctions within the concept of internal-external control: Development of a new scale. *Proceedings of the 80th Annual Convention of the American Psychological Association, 261-262*.
- Polczynski, J. J. (1977). Expectancy theory and contract grading combined as an effective motivational force for college students. *Journal of Educational Research, 70*, 238-241.
- Renzulli, J. S., & Smith, L. H. (1978).. *The Learning Styles Inventory: A measure of student preference of instructional techniques*. Mansfield Center, CT: Creative Learning.
- Rotter, J. B. (1966). Generalized expectancies for internal vs. external control of reinforcement. *Psychological Monographs, 80*, (1, Whole No. 609).
- Sarafino, E., & DiMattia, P. A. (1978). Does grading undermine intrinsic interest in a college course? *Journal of Educational Psychology, 70*, 916-921.
- Seaton, B., Vogel, R. H., & Pell, S. W. J. (1980). Student preferences for instructors in higher education. *Journal of Experimental Education, 48*, 223-230.
- Singapore 'must re-look how to assess students'. (1996, May 29). *The Straits Times*.
- Smith, L. H., & Renzulli, J. S. (1984). Learning style preferences: A practical approach for classroom teachers. *Theory into Practice, 23*, 44-50.
- Vollmer, F. (1986). The relationship between expectancy and academic achievement - How can it be explained? *British Journal of Educational Psychology, 56*, 64-74.