

**The Development of Assessment Rubrics to examine Integrative Learning in a Four  
Year Teacher Education Program**

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### **Background of Project**

The Hong Kong Institute of Education is an institution set up for the purpose of educating teachers at the undergraduate and graduate levels, including the continuing development of in-service teachers. The focus of this paper is on the four year undergraduate programme, which prepares teachers for kindergarten, elementary, and secondary schools in Hong Kong. In this programme of study, students spend part of every academic year in actual schools, working with regular teachers, shouldering increasing amounts of responsibility in lesson design and teaching, and receiving feedback from professors who go to observe their classes.

In this project, we are concerned with the learning outcomes of students who pass through the four year programme, specifically, their ability to integrate the academic knowledge gained from separate modules of study from different departments, and the practical skills gained from their experiences in the field. Integration would mean students making connections across learning modules and any authentic experiences as a novice teacher.

In particular, we want to follow the development of the students over the four years to map their progress in becoming a professional teacher. This conceptualization relates the student as a person, his or her learning within the programme, and their aspirations to become professional teachers. It focuses on the notion of “integrated practice” as the final outcome. By looking towards an outcome of the “teacher as integrated practitioner” the focus goes beyond the actual programme, and the notion of “becoming a teacher” becomes the core integrating concept.

Another concern of the project is on the assessment of the teacher as an integrated practitioner. The intent is to develop an assessment task that would assist students to integrate their learning. In other words, in performing the task itself, students would in part develop their integrative ability. For this reason, the project is titled “assessment for integrating learning.”

This paper describes the development of a set of rubrics for one of the tools for assessing and integrating learning at the Hong Kong Institute of Education.

### **Conceptual Framework**

First we examined integrated learning, then we considered what kinds of abilities the teacher as an integrated practitioner would possess, and finally, we developed a framework to guide the formation of the assessment rubrics.

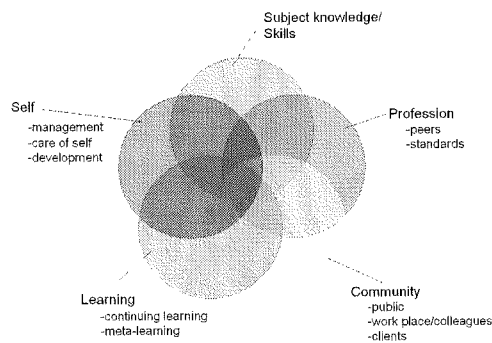
What are students doing when they are integrating learning? Integrative learning comes in many varieties: connecting skills and knowledge from multiple sources and experiences; applying skills and practices in various settings; utilizing diverse and even contradictory points of view; and, understanding issues and positions contextually (Perez de Tagle ). Integrating processes could be based on “abilities” or “practice”. An example

of the former is communicating or analysing by drawing on multiple sources of learning. An example of the latter could be a group of students planning a teaching session.

Huber & Hutchings (2004) believe that “learning that helps develop integrative capacities is important because it builds habits of mind that prepare students to make informed judgments in the conduct of personal, professional, and civic life...” (p.1) They also argue that the notion of “vocation” serves to link the many different experiences of students, and therefore, in the context of the development of teachers as professional practitioners, prospective teachers would benefit from taking a more

intentional, deliberative, and reflexive stance towards their vocation, requiring the integration of learning during their pre-service years and beyond.

Looking at the years beyond in-service training, we examined a generic model of practice in any profession presented by David Boud (2007, personal communication). It is a flower of five petals:



In the domain of teaching as a profession, the five elements of the model would take the following form: the subject knowledge/skills will be subject content knowledge and knowledge and skills of pedagogy; the profession will include professional/regulatory bodies of schools and departments of education; the community would include the school, parents, students, and fellow teachers; the self will include self concept as a teacher and a professional; the learning would include professional development courses as well as personal development with expanded experience.

Overlaid above the five elements of the “teacher practitioner” model would be different attributes that underpin the teacher’s performance in the five elements. These attributes might include problem-solving, communicating, etc. These attributes would form the “learning outcomes” developed through the four year university programme, and be reflected in the assessment tasks for integrating learning.

A similar model of the developing teacher can be found in Alverno College’s (2005) ability-based program for teacher education. The Alverno program is based on eighth “abilities”: communication; analysis; problem solving; valuing in decision-making; social interaction; developing a global perspective; effective citizenship; and aesthetics engagement. Each ability is mapped according to six developmental levels: two beginning levels; two intermediate levels; and two advanced levels in areas of specialization. Criteria are specified for each level. Assessment includes course-based assessments and “integrative assessment” that focus student learning from several courses. In addition to the eight abilities in the undergraduate programme, there are five abilities seen to be essential in the preparation of teachers: conceptualization; diagnosis; coordination; communication; and integrative interaction.

This last ability – integrative interaction – allows teachers to act with professional values as a situational decision-maker, adapting to the changing needs of the environment in order to develop students as learners. It is this ability that our first assessment tool for integrating learning would want to tap into.

Based on the literature review, and an examination of our expectations for beginning teachers, four of the five elements of integrated practice were adopted for our assessment of the teacher as an integrated learner: pedagogical content knowledge; self; profession; and community.

### **The Assessment Rubrics**

The Alverno model had a strong influence on the development of the first assessment tool. One of the assessment tasks that Alverno students perform every year in college is a videotape of an oral presentation. Students then match their self evaluations with those of their professors' according to the six developmental levels for the eight target abilities that form their learning outcomes. Over the four years, students develop a progressively clearer picture of what the developmental levels mean, and become more able to advance their abilities.

In this project, a set of rubrics similar to the Alverno developmental levels was developed for use by both students and faculty. The rubrics would cover the four elements of the teacher as an integrated learner. Each element was given four levels. Performance at Level 1 would indicate that the student teacher has yet to demonstrate integration. At Level 2, the performance would indicate a minimum level of integration. Level 3 would indicate a satisfactory level of integration while Level 4 performance would demonstrate a competent level of integration. Descriptions of the performance levels were written out to share with student teachers.

The following section of the paper describes three pilot studies that assisted in the development of the rubrics into its present form.

### **The First Pilot**

The first pilot was performed in June 2007. The subjects were 10 first year students at Hong Kong Institute of Education. Four were Early Childhood Education majors and six were Maths majors.

The assessment task was responding to six questions after viewing a movie clip of a kindergarten child bullying other children. A video scenario was adopted because it was a task that enabled student teachers to make use of the theoretical and practical knowledge in a situation in which they would need to make decisions about teaching and learning in an actual classroom setting. The six questions were:

1. What do you think the teacher's intention was when setting up this activity?
2. How would you as a teacher change the situation in order to lead to an appropriate outcome?
3. How would it be different if the child is two years older?
4. If it is the third time the teacher sees this kind of behaviour during the day, what would you do as a teacher immediately?
5. What would you do as a teacher if this is an established pattern?
6. What support would you seek or enlist from the school?

The students watched the video together, then filled out individual responses to the questions, followed by group discussion in three groups, two homogeneous groups of students with the same major, and one heterogeneous group with one Early Childhood Education major and three Maths majors. After presentations by each group, students adapted their original answers to the six questions. The students were given the set of

rubrics to indicate how their answers were to be scored, but they were not asked to score their own answer according to the rubrics.

At the end of the session, there were post-pilot interviews with the participating students. They were asked four questions:

1. Can you apply what you have learned in this exercise?
2. Did you learn something new by listening to other schoolmates' point of view?
3. Can this mode of viewing the video and having group discussion be commonly found in your lessons?
4. What do you think the effect to your learning if this mode is to be incorporated into your usual lessons?

The first draft set of rubrics used the intersections of the four petals to form the elements for assessment, giving 15 elements to be assessed at 4 levels of development. An example of two elements at the four levels is given below.

	Level 1	Level 2	Level 3	Level 4
Pedagogy & Professional Workplace	No awareness of the relationship between pedagogy and professional workplace context	Student attempts to adapt pedagogy to the local professional workplace context	Some evidence of success in adapting pedagogy to the local professional workplace context	Student can demonstrate competence in adapting pedagogy into the specific context of the profession
Community and Self	Teacher is alienated from professional/community organizations	Minimal involvement in professional/community organizations	Active involvement in professional/community organizations	Is member of a wide range of professional associations and is able to connect

This was quite complex and unwieldy. It was not only impossible for student teachers to grasp 15 sets of these descriptions during a short session, it proved too difficult even for the research team to handle. So a streamlined version was immediately developed using only the four major elements.

Other changes were also made. More elaborate definitions or descriptions of the levels were written giving clearer guidelines to assist in student understanding and self evaluations. Wording for Level 1 was changed to a positive wording to indicate what we want students to achieve, rather than what cannot be seen.

Overall, the pilot session indicated that it is possible to see slight differences in levels of development in the four elements, but we needed students over the span of four years to give a full range, so we decided to include upperclassmen in the second pilot. The students' responses in the post session interview showed that they learned from each other in the session, but were only minimally involved in the use of the rubrics.

Based on these findings, we made changes in the procedures for the assessment session in the second and third pilots, described below.

### The Second Pilot

The second pilot was conducted in December 2007. The subjects were 15 students from the Early Childhood Education Department. After the purpose of the study was explained to them, they were shown a video clip of a kindergarten child playing with

coins and distracting other children instead of observing banknotes and coins as instructed by the teacher. At the end of the video, they individually filled in answers to eight questions. The questions were more specifically worded than in the first study in order to tap more integrative reasoning behind the response. The questions were:

1. Can the teacher attain her objectives in the activity? Why can and why cannot?
2. What can you tell about Yu-hing's behaviour? Do you think that he is different from the others in the class?
3. Would you allow Yu-hing to continue his own "game" during the activity?
4. How would you facilitate Yu-hing's learning?
5. What would you do if Yu-hing always displays the above behaviour/
6. If you were the teacher, would you choose the same activity or is there any alternative for the same objective?
7. How would you know that the objectives have been achieved?
8. What kind of assistance would you draw upon to extend the range of your options?

After answering the questions, student teachers self evaluated by marking on the rubrics distributed to them, plotting where they would put themselves on the 4 developmental levels.

At the end of the session, several student teachers were asked to stay for a post-session interview, regarding the reasons why they gave themselves the scores as plotted on the rubrics, and regarding the sources of the responses that they have written down.

The results indicate that students were able to evaluate themselves using the rubrics. Their self evaluations were not totally consistent with the scores given by the researcher, but those interviewed could explain why they scored themselves the way they did.

One of the findings was that it was much easier to give scores on pedagogical content knowledge, mainly because the video showed a classroom setting where PCK was actively used. It was much more difficult to score "profession" and "community". Many student teachers felt that they were still students, and therefore would not give themselves high scores on "profession" even though sometimes their answers revealed awareness of professional standards or the use of professional resources. This was an area in which the researcher sometimes gave higher scores than the student teachers.

Another finding was that student teachers rarely brought in their own roles as active members of the community, or considered cultural background in their responses. Thus, their scores on "community" were only on Level 1 or 2.

One of the participating student teachers was a masters student. Most of her scores were Level 4, indicating that developmental levels in the rubrics probably can reflect the learning and development of students in our four year program.

In the post-session interviews, students expressed support for such integrative assessments tasks using this kind of rubrics. They felt that the rubrics gave them a goal to aim for, and a way to assess their own development towards this common goal shared by faculty and students.

### **The Third Pilot**

The third pilot study was given to 8 Year One and 8 Year Four Maths majors. The student teachers viewed a video clip of primary school students learning about bar charts. In the video, a teacher asked students to colour square-shaped paper with their favourite colour of the rainbow in order to put together a chart of the class's colour interests. Siu Lai did not comply with the teacher's directions by choosing the colour pink. The teacher allowed one more colour to be made, giving a bar chart with eight instead of seven colours.

The rubrics were explained and handed out to the student teachers before they answered eight questions similar to those in the Second Pilot. In this way, the participants could think about the video and their responses with the descriptions of the developmental levels in mind. After answering the questions, participants evaluated their own responses using the rubrics.

Pilot findings indicate no differences between Year 1 and Year 4 students in terms of their scores on the 4 elements. However, although the rubrics were given to them beforehand, they indicated that they did not think about the rubrics while watching the video clip or writing their responses. It appeared that based on an initial perusal, the rubrics were not very meaningful to them; only after making use of the rubrics for self evaluation did they realize how the descriptions can guide their thinking and learning. This result indicates that long term use of the rubrics by the students through the four years of the college program would be more beneficial than their use in a final summative evaluation. The findings also support our notion that the assessment task does influence student learning.

### **The Way Forward**

It appears that the use of a video clip as an assessment stimulus combined with the use of rubrics detailing four sets of attributes of the teacher practitioner is a viable assessment tool for integrating learning.

At the moment, pilot studies are continuing with Chinese majors, and the rubrics are undergoing further refinement. Efforts will be made to clarify the "Community" aspect of the teacher attribute so as to enable student teachers to capture the interaction between teaching, civic duties, social fabric of the community, and the use of community resources. Copies of the draft rubrics will be made available to conference participants.

The rubrics will also be tested with other assessment tools such as portfolio, patchwork, and Capstone projects which have potential of tapping integrated learning (Yorke, 2005).

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