University of Hong Kong

Faculty of Education

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29 November 2003

Assessment of Students' coursework for S4-5 Computer and Information Technology Curriculum

Feedback from Training Workshops

- Interpretation and Selection of questions
- Planning
- Implementation
- Cheating
- Evaluation
- Report writing
- Marking

Interpretation and Selection of questions (1/3)

- It is assumed that
  - there is a number of choices of coursework within each elective module
  - the coursework question is phrased vaguely, like those sample coursework questions

Interpretation and Selection of questions (2/3)

- Teacher has a crucial role to play
  - **Interpreting the requirements of the coursework question**
  - **Making conjecture about the degree of difficulty of coursework question**
  - **Advising possible use of software/hardware**
- Based on the guidance of teachers, students should be encouraged to select an appropriate coursework on their own which is **achievable** according to their interest, aptitude and ability
- An "achievable" coursework is one that can meet the basic requirements in an highstake public examination

Interpretation and Selection of questions (3/3)

- If the student is involved in the discussion on how to select a coursework, it will give him/her a greater sense of ownership and a greater incentive to carry out the coursework
- If a student chooses coursework which is too ambitious, teacher should alert him/her the risk of encountering obstacles and limited help
- If there are a number of choices within an elective, students are NOT required to give an account of how he/she analyses each choice

Planning (1/8) – Specification

- A specification has to be drawn up by students and the teacher can give feedback to the student
- For average or below average students, teacher may need to offer help in drawing up the specification
  - "How much guidance should a teacher give?"

Planning (2/8) – Template vs. Seed ideas

- Teacher may feel more comfortable to prepare a template for a student to follow because
  - Some students lack the ability to foresee how the final product looks like
  - The school (market/freeware) is lacking a variety of software/hardware
- Undesirable effects of providing a template
  - Student follows the template without knowing the rationale behind the design
  - Diminish the opportunity for the development of creativity

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Planning (3/8) – Template vs. Seed ideas

- Teacher can present several seed ideas to the students and let them go through a thinking process
  - different scenarios of the coursework
  - related examples
  - sources of information
  - provide students with an evaluation of existing solution
- Students of average ability are likely to adapt seed ideas to generate reasonable specifications
- Students of low ability or low incentive may adopt one of the seed ideas without any modifications to draw up an achievable specification

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Planning (4/8) – Collaboration among students

- Teacher may help students who choose the same coursework to form cell-group in order to brainstorm and share ideas
- Sharing ideas does NOT mean copying

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Planning (5/8) – When to start ?

- S4, summer vacation between S4 and S5, S5 ?
- Divide into phases
  - Coursework is supposed to be done over a period of time and NOT to be rushed in the last month or even week
  - Each student and teacher should agree on an individual reasonable schedule
  - Help students to have a better time management
  - Prevent students drag on when encountering obstacles which lead to insufficient time in writing up the report
- The schedule differs according to the nature of the coursework, ability of students, etc.

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Planning (6/8) – When to start ?

- April 2004
  - Interpretation and selecting a coursework
- July – August 2004
  - Data collection
- September 2004
  - Further discussion on coursework based on data collected during summer vacation
- September – December 2004
  - Implementation of the coursework, submission of interim product and report
- January 2005
  - Write up the final report
- January/February 2005
  - Marking of coursework

This is only one possible schedule, there exists a variety of alternative schedules

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Planning (7/8) – Pre-training

- Teacher can do some pre-training through mini-projects before the students really start the coursework
- Mini-projects help students to know how to set objectives, analyse problem, design solution, etc.
- Pre-training can also include training on report-writing skills as it is one of the weakest abilities of Hong Kong students

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Planning (8/8) – Knowing the assessment criteria

- Unless there is clear instruction from the HKEAA prohibiting teachers from releasing the assessment guideline (AG), there is a consensus amongst teachers that students should know the AG BEFORE they start the coursework
- The AG is NOT a firm guideline; teachers can modify and add descriptors in order to
  - **suit a coursework (1 universal AG is NOT suited to serve assessment of coursework of different elective modules)**
  - **a particular product with attributes which do not exist in products produced by other students**
- When drawing up the specifications, teacher and students can agree on a set of assessment criteria
  - **This let the students know clearly the target(s)**
  - **Involvement of the student in setting the assessment criteria is part of the learning experience**

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Implementation (1/7) – Data collection

- Data collection is almost the first step in carrying out the actual coursework
  - Reading books, magazines
  - Internet search, CD-ROMs
  - Site visits
- Evidence of asking for copyright can be demonstrated by including the communication record (e.g. email printout) into the report as appendix

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Implementation (2/7) – Keeping log

- Develop the habit of recording progress on a log journal and teacher can sign against each phase completed if the student can show evidence of finished parts
  - The log can be added to the report as evidence of going through a development process
  - Help students to recall what had been considered during the analysis, design, implementation, evaluation and testing processes
  - Help students to write up the final report

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Implementation (3/7) – Use of resources

- The student decides to use a particular software/hardware that best fits his/her design and implementation, but the school lacks such item
  - **In the planning stage, the teacher should let the student know the limitations**
  - **The student then has to think of his/her design within the scope because NOT every coursework has to be done with sophisticated tools**
- The teacher is not familiar with a tool
  - **The student can always explore from the "Help"/user manual provided by the tool or seek information about the tool from the Internet**
  - **A teacher does NOT need to know the tool well because a teacher is expected to offer general guidance and NOT to tell specific technical procedure**
  - **Both the student and teacher can explore alternative tools**

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Implementation (4/7) – Use of lesson time

- The 10-hour contact time stated in the CIT curriculum guide is certainly not enough for students to do coursework in class
- Teacher may set aside certain periods to discuss with the whole class about the coursework at each stage and review the progress
  - Different students attempting the same coursework may encounter similar obstacles and teacher can take this opportunity to discuss those problems and this can be seen as part of the learning process (Assessment for learning)

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Implementation (5/7) – Interim assessment

- Requesting a student to submit his/her work at regular intervals allows the teacher
  - To judge whether the student is really doing the coursework in his/her own effort at each stage
  - To allocate a certain score as "process mark"
  - To give feedback (Assessment for learning)

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Implementation (6/7) – Interim assessment

- Giving feedback upon interim assessment serves to
  - Let the student know whether he/she is heading in the correct direction
  - Let the student know whether his/her pace is appropriate
  - Let the student know whether any parts need to be strengthened
  - Encourage students to reach the highest level of work that they are capable of

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Implementation (7/7) – Interim assessment

- Inappropriate wordings of feedback may lead to unfairness in terms of assessment of learning
  - "Include in the report 'MS Access allows me to handle large amount of data', use your tables student.mdb, library.mdb to show that MS Access works with large amount of data"
    - ✗ Inappropriate
  - "Explain why you chose MS Access"
    - ✓ Appropriate

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Cheating (1/4)

- Plagiarism
  - Copying external resources without acknowledgement
  - Copying another student's work
- Doing the coursework for a student by a third party
  - Possible third parties are peers, parents, siblings, or even an expert
  - Pay to buy coursework tailor-made by companies

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Cheating (2/4)

- There is a consensus amongst teachers that it is difficult to prove cheating even if the case is suspicious because students who cheat
  - Rarely submit a piece of coursework without any modification
  - May even enhance/enrich the copied work
  - May copy the work from a student of similar ability of another school who attempts the same coursework

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Cheating (3/4)

- Preventive measures (CORD) are more effective

1. Teacher can emphasize the "C"ulture of honesty
   - Self-respect and being proud of a coursework accomplished by the student
   - Let the student know the consequences of being found out cheating
2. Teacher can make a holistic "O"bservation of the overall quality of the coursework submitted
   - Most teachers think that they know the student well and are able to spot out any part(s) that is/are completed in a level beyond the student's ability or style

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Cheating (4/4)

3. Interim "R"eview of progress
   - Setting milestones make it more difficult for a student to cheat
4. Hold an interview to "D"iscuss with student
   - Asking questions on different parts of the coursework to test whether the student really understand what has been done
   - Teacher may withdraw certain parts out of the coursework and ask the student to re-fill the gap in front of the teacher within a reasonable time limit

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Evaluation

- Evaluation is an essential part of a coursework
  - Hands on trial by potential or target users, survey based on questionnaires are possible ways to carry out evaluation
  - Teacher may also arrange several periods for students to present their coursework, and through Q&A students can get comments from peers
  - The presentation can be arranged AFTER the students submitted their products, the peers' comments are only allowed to be put in the report as further improvement

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Report writing

- The 8 aspects listed in the AG proposed by the HKEAA are of reference purpose only, they are NOT meant to be followed strictly in writing report, as long as the student can express all necessary details in an organised structure
  - Instead of giving zero mark if students wrote down items in the wrong aspect, the majority of teachers think that they will still score for items written in the wrong aspect, but give a low mark in the "Documentation" aspect
- Sometimes it is not easy to segment the report with aspects as clearly as proposed in the AG

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Marking (1/12) – Level Descriptors of AG

1. There is a consensus amongst teachers;
2. Standard practice in overseas examinations with elements of school-based assessment ; and
3. Research findings; that

- It is of significant importance that examination organisation (the HKEAA in the case of Hong Kong)
  - should release annually exemplars of reports, together with the corresponding products, of different standards selected from previous HKCEE coursework submitted
  - should accumulate and update the level descriptors (LD) used by teachers from different schools every year so that
    - **a pool of LDs can be released annually as reference when teachers have to make/modify/adapt their own LDs**
    - **teachers from different schools can adjust to a standardized judgment in a few years' time**

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Marking (2/12) – LDs vs. Aspect

- There is a division amongst teachers on how detail marks should be recorded down for LDs
- Some teachers think that LDs should be in great details and scored accordingly so as
  - **To be fair in marking**
  - **To justify the marks given (i.e. To protect themselves when the HKEAA or personnel delegated by the HKEAA visiting school challenge the marking)**
- Some other teachers think that marking according to LDs are too mechanical and flexibility should be allowed. They prefer to use an AG similar to the one used in marking the 2002 HKCEE IT coursework (i.e. only a single score for each aspect, breakdown of score is only up to the level of major sub-items under each aspect)
- Some aspects, such as "Creativity", are subjective and it is more sensible to give a single mark to the aspect by impression marking rather than scoring according to LDs
- No recommendations to be made, pending for the HKEAA to make a decision

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Marking (3/12) – Weighting of Aspect

- Many teachers think that flexibility should be allowed in allocating weighting to different aspects due to different nature of elective modules and individual difference of student's work
- Take the "Algorithm and Programming" elective module as an example
  - "Objectives" may not worth 10% of the total score as the user requirements of many programming coursework are close-ended
  - "Analysis" and/or "Design" should weigh heavier
- It is expected that either the HKEAA set a range of weighting for each aspect or teachers can exercise judgment on the weighting of each aspect, provided that all aspects add up to 100%
  - e.g. Objective [5 – 10 %]
    Analysis [10 – 15 %]
    Design [10%]
    Implementation [25 – 30 %]

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Marking (4/12) – Ways of marking

- Since the HKEAA requires schools to do internal moderation before submitting a fair queue on students' performance, standardisation amongst teachers within the school should be made

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Marking (5/12) – Ways of marking

1. Teachers can randomly sample several coursework from different groups of students

   After marking the samples individually, teachers can reach consensus on the standard of the samples

   Then each teacher marks the coursework from his/her own group and no more moderation needs to be done

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Marking (6/12) – Ways of marking

2. Each teacher marks coursework of his/her own group

   Comparison of samples of "High", "Medium", "Low" standards between different groups can be carried out to check whether adjustment of marks should be done

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Marking (7/12) – Ways of marking

3. Marking all coursework by each teacher in turn

   Agree on a way to reach a final mark for each coursework

   It is undesirable because

   - Teachers tend to use arithmetic mean, which is not reliable sometimes
   - Teacher who lead the student knows more (or better) about the learning process and stuff which are not physically submitted

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Marking (8/12) – Ways of marking

4. Assign a teacher to mark all coursework of all students from different groups

   It is a myth that this is fair!

   It is in fact undesirable and NOT fair to students because

   - If a coursework is marked by someone else who does not know the whole process, then the mark scored may not be a true representation of the student's performance

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Marking (9/12) – Maintaining a fair queue

- There is a consensus amongst teachers that it is IMPOSSIBLE and NOT FAIR to rank coursework of different electives in a single queue
- Teachers prefer to have a glimpse of all coursework before the "actual" scoring procedure because
  - This allows the teacher to have a general impression on the standard as a whole and the range of quality
  - This allows the teacher to adjust the LDs accordingly if necessary
  - This helps the teacher to rank coursework of the SAME elective while giving marks to each coursework

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Marking (10/12) – Product mark

- Many teachers found that it is not sensible to have some LDs listed in the "Implementation" aspect of the AG. They expressed that it is difficult/too demanding, or even absurd, to request either students to report or teachers to check fine details of certain LDs
  - e.g. "use resources with some skills"
- Instead of scoring so many LDs listed in the "Implementation" aspect, the majority of teachers prefer to give a single "product mark" for the "Implementation" aspect if the product is "workable"
- "Product mark" is an important issue if some students spent too much time on constructing the product and the quality of the report could not truly reflect the effort put into the coursework

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Marking (11/12) – Process behaviour mark

- In case the product produced by a student is incomplete or not-workable, some teachers think that "process mark" can be given for
  - Steady progress maintained
  - Work according to schedule
  - Showing initiation and responsible attitude
- But some teachers feel that it is unfair to let teachers exercise power in giving "process mark" according to "behaviour"

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Marking (12/12) – Coursework which requires report only

- There is a strong consensus that students should not only be required to submit a report
- The requirements stated in the coursework question should require students to have hands-on experience either in producing a product or going through some practical tasks

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