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Using Decision Analysis: Connecting Classroom and Field

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Summary

This paper reports on the findings of a small-scale research project investigating the views of social work students on the use of decision analysis. After giving the context of the research, the article reports on what was found when students, who had just completed a *Decision Making and Risk* module, were asked for their opinions on the component parts of decision analysis, its use as a practice tool and their attitudes to using it on placement. The research found that the respondents in general took a critical and supportive stance towards the use of decision analysis in social work and that with extra teaching and a positive approach from their practice assessor would be happy to use decision analysis. When the same group of students completed a follow up questionnaire on a placement recall day, half of them had thought about using decision analysis but only three had gone on to discuss this with their practice assessors. Some issues in relation to connecting 'classroom' and 'field' are identified and the paper concludes that a number of further steps would be necessary to realise the potential of decision analysis to help students be more systematic and analytical in their approach to decision making.

Key Words

decision analysis, critical use, decision making, informed decisions, service user involvement, critical reasoning skills, theory/practice interface

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Introduction

This paper reports on a small-scale research project designed to investigate student views and stances towards the use of decision analysis in social work. For a number of years decision analysis has been part of the social work curriculum at the University of Lincoln, which is one of sixty-eight universities in England to be accredited by the General Social Care Council (GSCC) to provide social work degrees. Introducing the use of decision analysis during the university's pre-registration training is thought to have the advantage of giving early familiarity with this important developing area. The *Decision Making and Risk* module introduces students to a critical use of decision analysis as a practical tool in uncertain practice situations, when there is time to carry out such an analysis and the decision warrants the time invested. The teaching is based on the developmental work carried out at the university into the use of decision analysis in social work and published work in the fields of business (Goodwin and Wright, 1998), nursing (Thompson and Dowding, 2001), medicine (Hunink and Glasziou, 2001) and social work (O'Sullivan, 1999; Munro, 2002). Decision analysis shows the potential of being a useful tool, however, there is no known published empirical research into its actual use by social workers in social work practice situations, although it is explained in O'Sullivan (1999:127-39) and Munro (2002:117-40).

The first section of the article will give the context of learning and teaching decision analysis on a social work course. The second will report the findings and finally the third section will discuss the implications of the findings and comes to some conclusions.

Learning and Teaching Decision Analysis

Decision analysis is a way of comparing options in terms of the balance between the chances of good and bad outcomes occurring and the amount of benefit and harm associated with the possible outcomes. The use of decision analysis to help make a decision involves the following steps.

1. Constructing a decision tree that includes, identifying options, paths events might take and possible outcomes of these paths.

2. Estimating the probability of events taking a particular path.
3. Giving a numerical score to the possible outcomes of the various paths.
4. Calculating the expected utility of each option, a number that combines the probability of events taking particular paths and the value of the outcomes of these paths.
5. Identifying the option with the highest expected utility value as giving the best chance of a good outcome.

Using decision analysis to assist making decisions is thought to have a number of benefits (Munro, 2002:117; Thompson and Dowding, 2001:142; Hunink and Glasziou, 2001:24) including helping decision makers to:

- Think about and identify options in a clear and explicit way.
- Identify paths events might take and their possible outcomes.
- Consider the factors that may influence chances of events taking a particular path and make judgements about probabilities.
- Make judgements about relative benefit and harm.
- Combine the chance and magnitude elements of uncertainty into a single figure.
- Decide which option gives the best chance of a good outcome.

Certain requirements may also create limitations in its use, including:

- The time required to carry out the analysis.
- The amount and quality of thinking required to structure the decision.
- The reasoning skills required to make valid judgements.
- The need to accurately carry out the relatively straightforward mathematical operations.

The *Decision Making and Risk* Module

Decision Making and Risk is a Level Two Module of the BSc (Hons) Social Work Degree that students undertake before their Final Placement. The module puts forward a practical and critical approach to the use of decision analysis in practice situations. There are two broad strands to the use of decision analysis, developing standardised protocols that provide recommended pathways for practitioners/service

users to follow (see Tavakoli et al, 2000) and the practitioner/service user use of decision analysis to help decide what to do in particular situations. The module teaching concerned the latter and students are shown how to, construct a decision tree; estimate probabilities and score possible outcomes; and calculate the expected utility value of each option. Decision trees can get very complex (for example see, Munro, 2002: 119) and are in danger of becoming “a tangled thicket” (Lanza and Bantly, 1991:65). As a consequence emphasis is given to the construction and use of relatively simple decision trees like the one given in Figure 1. Such relatively simple decision trees can still bring clarity and coherence to decision making while students are in a better position to learn the basic principles involved. A particular emphasis is placed on the potential to help service users make informed life decisions and case studies are used in lectures, workshops and assignments to illustrate and give students practice in using decision analysis in practice situations.

[Fig. 1 Decision Tree]

Webb (2002:51) refers to decision analysis as a “rapidly expanding and highly controversial” field. One source of controversy is the quantification of chance and value in practice, and the choices that have to be made as to how to present these issues to students. There are subjectivist and objectivist perspectives on probability; the former sees probability as a ‘mental construct’ and the latter as a property of the ‘real world’ (Dowie, 1992:36). Probability within the so-called objective view is based on the frequency with which events are likely to occur in a long run. However, even in a discipline such as medicine, in which some reliable success rates exist for certain medical procedures, it has been argued that,

“Objective frequential probability, [...] does not translate smoothly to subjective probability, and it is subjective probability that clinicians use in practice.” (Little, 1995:63)

The module puts forward a subjectivist or “personal theory” (Baron, 2000:99) approach to probability on the basis that there can be no “objective” probability of unique events. Subjectivists are willing to take account of frequency counts from the past where they exist, but believe it is not possible to routinely take an actuarial approach to probabilities in social work (Kemshall, 1992:135-7; Munro, 2002:124:

O'Sullivan, 1999:137). The argument is that decision makers inevitably base their judgements on their knowledge and beliefs, and that this is better done in an explicit way so as to be available for scrutiny of self and others (O'Sullivan, 2005:229-31). To help form their judgements, students are encouraged to carry out a careful analysis of a decision situation and explicitly identify predictive factors combining their own judgement with available research findings. Students are alerted to the systematic bias that research has shown that human beings can be prone to (Tversky and Kahneman, 1982) and the need to critically examine the reasons for their beliefs about probability.

Potentially equally problematic is the assigning of a numerical score to possible outcomes. For example, practitioner scores can be very different from service users scores (Thompson and Dowding, 2001:136). For the sake of clarity the discussion shall proceed on the basis of social workers and service users making joint decisions, although, levels of service user involvement (O'Sullivan, 1999:43) and roles of social workers (Ibid, 1999:14) vary depending on the circumstances. Using a ten-point scale, the score of each possible outcome is negotiated, depending on how desirable or undesirable the outcomes are considered to be. The number of points between the possible outcomes is checked to see if these accurately reflect beliefs about the differential impact of those outcomes and their relative value. A sensitivity analysis (Oakshott, 1993:83; Hunink and Glasziou, 2001:70) is carried out to see if relatively small changes in probability and value scores change the option that has the highest expected utility.

The form of decision analysis put forward in the module represents a judgement-based approach to practice combined with what Trinder (2000:142-3) identifies as the pragmatic approach to evidence-based practice. Webb (2002) discusses how decision analysis is a potential way to implement evidence based practice and argues that "practice-based evidence ... should be regarded as a complementary dimension to evidence based practice" (Ibid:59). He goes on to state that decision analysis "seeks to determine explicitly the preferences and biases of the decision maker and the uncertainties associated with the decision" (Ibid:53) and adds that it can be criticised as being "a mathematical confirmation of the bias that already pre-existed the process of decision construction" (Ibid:55).

It is not claimed that decision analysis eradicates or even reduces uncertainty nor is it intended to replace human judgements based on careful assessment and analysis.

The module's approach explicitly recognises, White and Stancombe's (2003:11) point, "that statistical reasoning itself requires judgements". The method potentially provides a framework for using judgements in an explicit and organised way to render decision making more transparent and systematic. As such it increases the chances that actions are consistent with the decision maker's beliefs and values and is a practical way of implementing any relevant research evidence that is available.

Critical Stance

As well as being expected to carry out decision analysis and use critical reasoning skills, students are encouraged to adopt a critical stance towards the use of decision analysis in social work. The term 'critical' is a contested concept used in a number of ways in higher education (Barnett, 1997) and is often used without explanation. In the context of this research the term 'critical stance' is used to denote a questioning, reflexive and thoughtful attitude towards the use of decision analysis in practice.

For the purpose of this research a six-category framework for analysing student stance was constructed and given in Figure 2. The aim of the module is to get students to critically consider the use of decision analysis as an aid to making decisions in social work. All three attitudes in the critical column are given equal status as acceptable learning outcomes, whether, critical acceptance, critical rejection or critically undecided. In the non-critical column, there is likely to be most concern about "non-critical acceptance", and a particular interest in how many, if any, students display this disposition towards decision analysis. The specific allocation of respondents to one of the six categories proved to be beyond the scope of this research.

Fig. 2 Student Stance Towards the Use of Decision Analysis		
	critical	non-critical
Accepting	Critical acceptance	Non-critical acceptance
Rejecting	Critical rejection	Non- critical rejection

No opinion	Critically undecided	Have not thought about it
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The module teaching content put forward, implicitly, if not explicitly, a provisional critical acceptance of decision analysis as a potentially useful practice tool. This critically accepting stance is regarded as a necessary prerequisite for using decision analysis on placement. For the purpose of this research, critical acceptance was associated with decision makers:

- not becoming over confident about the result of the analysis, it being only as valid as the judgements and figures used.
- not becoming seduced by the seemingly objective scientific appearance.
- recognising the need for having clear and valid reasons for probability estimates and value scores.
- recognising sources of bias and the need for reflexivity in relation to values and beliefs.

And recognising and appreciating the potential of decision analysis to:

- improve clarity of thinking and promote a systematic approach;
- enable the reasoning behind decisions to be scrutinised by service users and other stakeholders.
- increase critical awareness of own thinking and reasoning;
- record how decisions were made to aid future accountability

Module Assessment

Students completed a written coursework assignment that involved calculating the expected utility value of each option in a case study. They are expected to be reflexive and carry out critical reasoning at each stage. Firstly, by justifying their probability estimates and numerical scores for possible outcomes and critically assessing their validity and the forms of biases that might be operating. Secondly, by constructing an argument as to which is the best option and giving the reasons for their conclusion including identifying and assessing counterarguments. This widens the analysis beyond choosing the option that gives the best chance of a good outcome, to include, for example, implications of the options for autonomy and justice

(Thomson, 1999:98). The best assignments demonstrate well-developed critical reasoning skills, by giving a coherent argument as to which is the best option. This involves the students giving clear reasons for their conclusion and why counter arguments were rejected. Members of the module team assessed assignments against set assessment criteria that students received in advanced.

The standard of work in assignments shows the vast majority of students were competent in using of decision analysis in relation to a case scenario. The exceptions were a small number of students who make basic and significant errors in carrying out decision analysis, for example, probabilities not adding up to one, arithmetical errors, failure to give reasons for probability estimates and value scores. For example, the probabilities of the possible outcomes of an option not adding up to one, is a violation of a fundamental rule of probability as a mathematical system (Baron, 2000:104). There is also a larger group of students who do not clearly demonstrate the ability to construct a reasoned argument. This maybe unsurprising in the context of Kuhn's (1991:4) claim that the average person does not possess cognitive skills of argument and there are indications that some social workers lack, or are not using, a capacity to construct valid arguments (O'Sullivan, 2004:8-9).

Using Decision Analysis on Placement

Decision analysis has the potential to help students meet *The National Occupational Standards for Social Work* (Topss UK Partnerships, 2002), which students have to demonstrate while on placement. In particular, decision analysis can potentially assist students to: help service users make informed decisions; assess options; assess risk; prepare for decision making forums; enable service users to be involved in decision making forums; and provide evidence for decisions and justify decisions. To date the module teaching has not been systemically extended to the student placements. It is not uncommon in social work education for theories and processes to be taught as useful practice tools that students may or may not use on placement, depending on the choices of students and practice assessors and the nature of the practice settings they find themselves in. In the absence of evidence that decision analysis is a widespread tool used within social work, research is necessary to help show the way forward for extending the learning and teaching of decision analysis in practice situations.

Method

In 2005, when the *Decision Making and Risk* module assessment and student evaluations were completed, questionnaires were sent to the recorded address of sixty-six students enrolled on the Year 2 of the BSc (Hons) Social Work. Just over eighty percent of this cohort was female, just over sixty percent was over twenty-four years old and just under ninety percent white British or white Irish. Twenty-seven of 66 students completed and returned their questionnaires giving a response rate of 41%. A accompanying letter explained how the questionnaire was part of a research project into the potential use of decision analysis in social work and was separate from the module assessment or module evaluation. The questionnaire consisted of twelve fixed-choice questions and one open question and was to be completed anonymously. Ethical approval for the research was gained through University of Lincoln's *School of Health and Social Care* Ethics Committee.

The method adopted, although having some advantages, is subject to a number of significant limitations. It cannot be ruled out that the sample was subject to an unknown systematic bias in terms of who returned the questionnaire and the research is best regarded as a case study of these 27 students. While, fixed-choice questions have the advantage of responses being easier to analyse, they have the limitation of restricting and to some degree shaping the replies of the respondents (Robson, 2002:274). Likewise, self-completion questionnaires have the advantage of removing potential interviewer effects but the disadvantage of not being able to probe respondents for the factors influencing their responses (Ibid, 2002:252). Despite these limitations, it was hoped that the research would shed some light on how students viewed the use of decision analysis. Responses to the questions will be considered under the headings:

Decision analysis and its component parts

Decision analysis as a practice tool

Using decision analysis on placement

Decision Analysis and its Component Parts

Students were asked questions about the five steps of decision analysis which were given earlier.

Order of Difficulty of the Component Parts

Students were asked to place the five steps of decision analysis in the rank order 1-5, giving 1 to the easiest and 5 to the most difficult. Seventeen of the 27 respondents ranked the five steps 1 to 5 as requested. There was no agreement as to the rank order of the five steps, however, there was a tendency for the second and third steps to be ranked hardest (with average rank positions of 3.88 and 3.58), the first and fifth steps the easiest (both with average rank positions of 2.35) and the fourth step being placed in the middle (rank average position 2.82). The second and third steps involve estimating the probability of events taking a particular path and giving a numerical score to the possible outcome of the various paths. The tendency to rank these as the most difficult could be interpreted as indicating some success in promoting a critical stance towards decision analysis. A non-critical acceptance would see these as relatively easy steps, only requiring the numbers to be “plucked out of the air”.

How straightforward is decision analysis?

The students were asked how straightforward they found decision analysis. All but two of the respondents (25) felt that decision analysis was relatively straightforward or very straightforward to carry out. The remaining two felt that decision analysis was not straightforward.

Attitude to estimating probabilities

For the purpose of the research, five common criticisms of the module’s approach to estimating probabilities and five corresponding supportive statements were constructed. Students were asked to choose between the corresponding critical and supportive statements. Ticking three or more of the supportive statements was taken to indicate a positive attitude to this aspect of decision analysis.

Fig. 3 Module's Approach to Estimating Probabilities	
<i>Common Criticisms</i>	<i>Supportive Statements</i>
relies too heavily on decision makers having valid reasons for their estimates	encourages decision makers to have valid reasons for their estimates
is little more than guessing	enables beliefs about what will probably happen to be critically examined
requires research evidence that is usually absent	encourages decision makers to seek out and use what research evidence there is
relies too heavily on the decision makers' subjective beliefs	helps decision makers to be more critical about their beliefs
is prone to systematic human bias	allows systematic bias to be partially overcome through reflexivity

Twenty of respondents ticked three or more of the supportive statements. Four respondents indicated a negative disposition towards this aspect of decision analysis by ticking three or more of the common criticisms. The remaining three respondents ticked less than three of either set of statements.

Attitude to assigning a numerical score to possible outcomes

Students were asked to choose between three common criticisms of the module's approach to scoring possible outcomes and three corresponding statements supporting the approach taken. Ticking two or more of the supportive statements was taken to indicate a positive attitude to this aspect of decision analysis.

Fig. 4 Module's Approach to Scoring Possible Outcomes	
<i>Common Criticisms</i>	<i>Supportive Statement</i>
is an arbitrary process	is a valid process that makes explicit the decision maker's values
is too reliant on decision makers having clear reasons for their scores	allows the reasons for giving an outcome a particular numerical score to be scrutinised
relies on decision makers carrying out a sensitivity analysis in relation to the scores given	has the safeguard of sensitivity analysis

Seventeen of the respondents were supportive of the scoring of possible outcomes while six showed concerns about this process. The four remaining respondents ticked less than two of either set of statements. The numbers are too small to be significant but it is interesting to note that more respondents were concerned about the scoring of possible outcomes than estimating probabilities.

The Expected Utility Value

Students were asked about how decision makers should regard the calculated expected utility values of the options. All but one of the respondents (26) felt the option with the highest utility value was a useful guide or one of a number of factors to be taken into account when deciding which is the best option. No students believed that the option with the highest expected utility value should be automatically chosen or that it should have no influence on choice of option. One respondent gave no answer.

Summarising the respondents' views on the component parts of decision analysis, in general, they regarded it to be relatively straightforward to carry out and accepted the need to make judgements and to carry out the mathematics. A minority of respondents expressed some concern about estimating probabilities and scoring the impact of possible outcomes. There were some indications that the respondents had a critical stance towards the making of these judgements and carrying out the mathematics.

Decision Analysis as a Practice Tool

Students were asked their views on social workers using decision analysis in practice situations.

Usefulness of Decision Analysis

Students were asked about the usefulness of decision analysis in actual practice. The vast majority of the respondents (25) felt that it was either 'definitely a useful practice tool' or 'in some ways a useful practice tool'. One respondent felt that it was definitely not a useful practice tool and one respondent give no answer.

Decision Analysis and Service User Involvement

There is no agreement amongst the respondents about the likely impact of decision analysis on service user involvement with less than half (12) believing it would help. Seven felt decision analysis would hinder service user involvement and seven that it neither helps nor hinders. One gave a qualified answer that was difficult to interpret.

Amount of Care Required

The students were asked their views on the amount of care that decision analysis requires in practice. Decision analysis can be incorrectly used in the sense that mathematical principles are not followed and/or insufficient care is given to the estimation of probabilities and scoring of outcomes. This raises the issue of whether the use decision analysis in practice situations needs the same amount of care as any other theory in social work or whether it needs extra care being particularly prone to incorrect use. Just under half the respondents (13) felt that decision analysis did require extra care. Eleven felt that it required the usual amount of care, one that it required too much care and two expressed no opinion.

Critical Acceptance of Decision Analysis

Students were asked whether they agreed, disagreed or had no opinion about six statements that reflected the critical acceptance stance encouraged in the module.

Disagreeing or having no opinion was taken to indicate the students took a different view on the use of decision analysis in practice. The six statements were:

1. There is a danger that decision makers place too much confidence in decision analysis.
2. There is a danger that clients and other stakeholders are seduced by the seemingly objective scientific appearance of decision analysis.
3. When using decision analysis decision makers should always have clear and valid reasons for their probability estimates and value scores.
4. Constructing a decision tree helps decision makers think more clearly and systematically.
5. Decision analysis can potentially enable stakeholders, including service users to assess the thinking behind decisions.
6. Decision analysis helps decision makers be more critically aware of their own thinking.

Ticking agreement to four or more statements was taken to indicate a critical acceptance of the use of decision analysis in social work practice. About three quarters of the respondents (21) ticked four or more statements. Four agreed with three statements and two expressed no opinion.

The Use of Decision Analysis in Social Work

Students were asked if they had any general comments on the use of decision analysis in social work. Fourteen respondents took the opportunity to give additional comments. Ten of these gave general or qualified support to the use of decision analysis in social work, while four expressed objections, one of which were strong objections. As an example, one of the supportive respondents stated that,

“I found the decision tree a very useful tool to help me analyse the best option as it made me critically look at all the options available and the way situations can improve and deteriorate. Although it was quite difficult to understand initially a few attempts later its okay.”

The respondent who gave the strongest objections stated that,

“I think that decision trees are so intricate that it would alienate service users and be unhelpful for participation. I think they are too long and complicated for practice and not simple enough to do in partnership with a service user. It's very critical of me to say but I think they are a waste of time.”

Summarising the respondents' views on decision analysis as a practice tool in social work, all but two felt it would be potentially useful in practice. Opinion was more divided as to whether it hindered or helped service user involvement with less than half the respondents feeling that it would help. Just under half the respondents felt the decision analysis needed more care in its application than other theories and about three-quarters indicated a critical accepting attitude towards its use. In the open question, ten respondents gave support to the use of decision analysis in social work. Four respondents expressed objections.

Decision Analysis on Placement

Three questions asked students about their views towards using decision analysis on their final placement.

Level of Confidence

Students were asked about their level of confidence in being able to use decision analysis on placement. Over half the respondents (15) felt they needed no extra help to use decision analysis on their placement. A total of twelve respondents felt they needed varying degrees of help. Five needed extra university training, four needed a lot of help from their practice assessor, while three needed both extra university training and a lot of help from their practice assessor.

Practice Assessor's Knowledge of Decision Analysis

Students were asked if they expected their practice assessor to be familiar with decision analysis. A third of the respondents (9) expected that their practice assessor would be familiar with decision analysis, while eight expected them to have no familiarity. Eight had no particular expectation and two respondents' answers were difficult to interpret.

Using Decision Analysis on Placement

Students were asked whether they would use decision analysis on placement and the degree to which this depended on the attitude of their practice assessor. The majority of respondents (22) would use decision analysis while on placement if their practice assessors had no strong objection or showed an interest. Four would only use decision analysis if required by their practice assessor; the remaining respondent would do so if their practice assessor suggested it.

Summarising the respondents' views of using decision analysis on their placement, over half felt they needed no extra help while those remaining felt they needed varying degrees of additional help. A third expected their practice assessor to be familiar with decision analysis. Five would need their practice assessor to take the initiative by suggesting or requiring them to use it.

The same group of students were asked to complete a short questionnaire on a "recall day" towards the end of their final placement. Sixteen of the thirty-four students who completed the questionnaire stated that they had thought about using decision analysis, however, only three had gone on to discuss this with their practice assessor. By far the most common reason for not discussing it with their practice assessor was that they were not sure whether it was relevant to particular situations and would prefer their practice assessor to suggest it. The reasons given by the three students, who did not go on to use decision analysis after discussing it with their practice assessors, were lack of sufficient knowledge or relevance to particular cases. The nineteen who didn't think about using decision analysis thought the reasons were that they had no time to analyse (1), placement had other methods in place (1), practice assessor never suggested it (1), they did not make a connection with their placement (2), didn't understand it sufficiently (3) or that it did not occur to them that it could be relevant (11). None of the thirty-four students actually used decision analysis while on placement, although one student stated they would use it in the remainder of the placement having forgotten about it in the midst of all the information they receive.

Discussion

The vast majority of respondents found decision analysis relatively straightforward to carry out and most took a critically supportive approach to its use in social work. In addition, most of the respondents were happy to use decision analysis on placement,

if support was available and it was thought to be appropriate to do so. The major areas of disagreement among the respondents were whether decision analysis would help or hinder service user involvement and whether it requires more care than other approaches to decision making. From the student performance in the *Decision Making and Risk* module the majority of students are basically competent in the use of decision analysis in relation to a case study, while a small minority made mistakes and a larger number were not using the necessary reasoning skills.

There are a number of possible explanations why a general support for decision analysis as a useful practice tool on completion of a university module changed to a subsequent reluctance to discuss its use with practice assessors. Students on the social work degree spend half their time in the university and half their time on placement. Sometime ago Barbour (1984) argued that the so called 'tandem model' of social work education was a barrier to integration of theory and practice as it involves students moving back and forth between the academic setting of university education and the apprentice model of practice settings. Currently, in the absence of the detail of what students have learnt at the university, practice assessors have to rely on what their students tell them. For one reason or another most of the sixteen respondents who thought about using decision analysis on their placements choose not to discuss its use with their practice assessor. The students appeared to lack the confidence to raise the issue.

The research suggests that a more proactive approach to connecting 'classroom' and 'field' is needed, if students are to be given the opportunity to use decision analysis on their placements. The proportion of practice assessors willing to include decision analysis in what they teach and assess is unknown. It might depend on how relevant and practical they consider decision analysis to be in relation to their own practice and in helping students meet the *National Occupational Standards* (Topss UK Partnerships, 2002). Clarke (2002:461) found that care managers regarded a particular model of risk assessment taught on a training programme to be far too time consuming and complicated to use, given the demands on their time and heavy workloads. This was particularly in relation to scoring possible outcomes and estimating probabilities, features shared with decision analysis. There are a number of other unknowns in relation to the practice assessors, including, how many are already familiar with decision analysis, how do they view decision analysis and how would they react to the university providing opportunities to learn more about decision analysis.

A hypothesis is that practice assessors would have confidence in students who either, use decision analysis in a competent and critical way or demonstrate their decision making skills in other ways. That concerns would be in relation to the small number of students who make mistakes or display a non-critical acceptance. There may also be a more general concern about the larger group of students who fall short of being able to demonstrate the critical reasoning skills required to construct valid and well-reasoned arguments.

Conclusion

The results of the module assessment and this research have demonstrated that the learning and teaching of decision analysis has been generally effective within the narrow confines of the university. Nevertheless four areas need further attention if 'classroom' and 'field' are to be effectively connected; namely, mathematical errors; critical reasoning; service user involvement; and the practice/theory interface. These areas reverberate far beyond the use of decision analysis and are rooted in issues affecting the whole of social work education and further a field.

Ways need to be found to enable a minority of students to stop making mathematical errors. It is open to question whether these students are not taking sufficient care or lack basic mathematical skills or knowledge. In relation to critical thinking skills, these are receiving more attention in social work education (for example see, Ford et al, 2004; Heron, 2006; Gray and McDonald, 2006). Nevertheless, there is a tendency in undergraduate higher education to restrict learning and teaching to the evaluation of the arguments of others. If Osmo and Landau (2001) are right that ethical decision making requires explicit argumentation, there needs to be more emphasis given to students constructing their own arguments, as in Cottrell (2005:167-82).

At present it is a matter of theoretical speculation whether the use of decision analysis helps or hinders service user involvement. Webb (2002:54) argues that,

“A consumer-led and service–user perspective suggests that decision analysis can lead to greater transparency of practice. Service users will increasingly be able to monitor the process involved. Social workers may be

required to provide detailed pathways to service users showing why various decisions were reached at different times of the process.”

Decision analysis has the potential to increase service user involvement by rendering how decisions are made more open to scrutiny, however, some students felt that service users would be mystified and overawed by the process. Only further research will shed light on how service users view decision analysis and whether they feel it helps make informed decisions.

Decision analysis has the potential to be put alongside other ways practice assessors can enable students to connect theory with practice (for examples see, Cartney, 2004; Collingwood, 2005; Fisher and Somerton, 2000; Noble, 2001). Both Cartney (2004:52) and Clapton et al. (2006:653) identify a challenge for the profession as being how to support the role of practice assessor and developing a more supportive relationship between academic learning and practice. Currently the potential of decision analysis to help practice assessors enable students take a more systematic approach to demonstrating *The National Occupational Standards for Social Work* (Topss UK Partnerships, 2002) is not being realised or tested. As Noble (2001:348) has argued practice assessors are,

“Often marginalized by the university in the curriculum development and scholarship enterprise [and] are mostly left to their own devices in the teaching and fostering of professional skills and the theory practice link.”

This research suggests that before students use decision analysis on placements, a number of further steps need to be taken, including, enabling students to take more care with the mathematics, more emphasis on students being able to construct valid arguments, consulting with service users on the use of decision analysis and providing practice assessors the opportunity to learn about decision analysis. With these additional measures in place further research needs to be carried out in partnership with service users, practice assessors and students to ascertain the impact of students using decision analysis in actual practice situations.

Currently research is planned in the form of a small-scale action research project involving a sample of social work students on placement. This will set out to investigate whether practice assessors find knowledge of decision analysis of practical relevance in enabling students be more analytical in relation to decision

making. The research will ascertain how students, practice assessors and service users respond to the opportunity to the use of decision analysis, particularly whether they find it helps or hinders: service user involvement; the making of informed decisions; and engagement in critical reasoning. The findings of the action research project will be used to review how the university and practice placements connect with each other as sites of learning and teaching decision analysis.

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