

Inspiration in a middle school curriculum

ABSTRACT

Early adolescence, classified from 10-14 years, is an important stage of development where thinking, planning and reasoning skills are evolving. Middle School is an educational context which focuses on the provision of support for students in this age group through the transitional period, from primary school to high school. Integrating a graphic organiser software program into a middle school curriculum is consistent with Middle Schooling principles, as it provides for a guided approach to developing problem solving and organisational skills and actively engages students in this learning process. INSPIRATION is a graphic organiser software program designed to help users visualize problems and organise information and ideas into logical structures. This study considered the conditions under which the problem solving and organisational skills of middle school students can be enhanced using this graphic organiser software.

EARLY ADOLESCENCE AND MIDDLE SCHOOLING

Many young adolescents have difficulty in coping with the transition from a primary school structure with one teacher and a thematic approach, to a traditional high school environment with many teachers teaching in discrete subject areas. Middle Schooling is an educational structure which can provide the guidance to young adolescents which is considered necessary in this transitional period. Taking into account the differences of each individual child, there seems to be agreement by researchers that the age classified as early adolescence is from 10 to 14 years, which is generally the age span of middle school students.

A review of literature surrounding early adolescence and Middle Schooling reveals that young adolescents have highly specific educational and psychological needs. Wormeli (2002, p. 25) and Harnett (1991, n.p.) state that the stage defined as early adolescence is characterised by a growth spurt in the executive function of the brain. The publication, "Teenage Brain: A work in progress" (National Institute of Mental Health, 2002), states that this "overproduction of gray matter" occurs in the thinking part of the brain, the neural connections or synapses. This happens in the frontal lobe, controlling the "executive functions" of planning, impulse control and reasoning. A pruning process may occur with some of these neural links following the principle of "use it or lose it". The functions of these neural links that are used more often thrive, and those not exercised may be lost (Rosenfield, 2002 p. 11; National Institute of Mental Health, 2002, n.p.). An imperative for

educators in middle schools is, therefore, to guide young adolescent students to develop and extend the emerging skills of critical thinking, organization and problem solving.

A key characteristic of Middle Schooling is an integrated curriculum. Rosenfield (2002, p.13) and Stringer (1998, p. 17) argue that an integrated curriculum helps young adolescents to recognise the connections between fields of knowledge and encourages evaluation of thinking and learning strategies. Hannafin (1999) states that the use of innovative, integrated Information and Communications Technologies (ICT) helps students to discover and develop how they learn and it also allows for the promotion of higher order thinking skills. Integrated ICT, which provides opportunities and structures to develop problem solving and organisational skills, is consistent with both the ethos of Middle Schooling and the developmental needs of young adolescents.

Examples of structures which promote successful organisational and problem solving skills and strategies are graphic organisers (Dyck 2002, p.20). Mindmaps, brainstorm, flowcharts and other traditional organisers have been commonly used in teaching and learning programmes. However, graphic organiser software allows for the integration of these structures across the curriculum using ICT. Can this combination of integrated ICT and graphic organisers in a middle school curriculum successfully enhance students' organisational strategies and problem solving skills? The researcher conducted a study using the graphic organizer software program Inspiration to determine the conditions under which it may be used to support the development of early adolescent students' skills.

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INSPIRATION – A GRAPHIC ORGANISER

Inspiration is the graphic organiser software which was chosen for this study as, at the most basic level, it provides a structure to enable users to organise thoughts and information. However, the variety of functions also provide flexibility and enable students and teachers to represent brainstorm, concept maps, idea maps, webs, visual diagrams and to design their own specialised templates (Classroom Ideas Using *Inspiration*, 1998 p. 3). Users of *Inspiration* are able to insert graphics, weblinks, notes, change colours and shapes and thus creatively personalise their work. These features can assist students to visualise problems and recognise relationships between topics and issues. Another advantage is that this software is not subject specific and so the various graphic organiser templates can be used for different topics and in different subject areas, thus allowing for the promotion of organisational skills and problem-solving strategies across all subject areas.

The Study

Discussions with year eight mainstream and educational support teachers at a co-educational metropolitan Catholic College in Western Australia, identified a lack of organisational skills as one of the main problems encountered by incoming students. The study was undertaken in 2003 at this college to integrate the use of *Inspiration* into a middle school curriculum and to research the conditions under which it may be used to support the organisational and problem-solving skills of year-eight students.

The research question addressed by the study was: *Under what conditions will the integration of a graphic organiser software tool into a middle school curriculum facilitate the successful implementation of strategies and constructs designed to enhance students' organisational and problem-solving skills?* The research design employed was a combination of ethnographic and action-research methodology. This design was selected as the ethnographic method allowed the researcher to take into account the physical and cultural environment of the college, whilst using a combination of qualitative and quantitative data collection. Action-research enabled the researcher to conduct on-going evaluation in consultation with the teacher during the study and apply therapeutic action when it was deemed necessary.

In the year of the study the College had 186 year eight students and was structured on a vertical pastoral care system, with six houses. There were six mainstream classes for core subject areas. Year eight students were placed into mainstream classes based on what house they belonged to and as far as possible there was parity between house groups in terms of gender, ability, talent and skills. A single class of 31 students was selected as being representative of the year eight cohort.

The study commenced with the distribution of pre-study questionnaires to the students in week two of term one, 2003, to determine their prior experience with computers and *Inspiration*, and also their perception of their own

organisational skills. *Inspiration* was then integrated into Society and Environment lessons and English lessons for this selected class. The College library was chosen as the location for the intervention as this software program was licensed on all the networked computers. Students could access *Inspiration*, other programs and the Internet by entering their password and then their work could be saved to their own workspace. There was a technology class area in the library which allowed for individual student computer use and also a digital projector which could be used to demonstrate or instruct using the computer images projected onto the large screen.

Inspiration was integrated into three Society and Environment lessons (two periods of 40 minutes and one period of 80 minutes) and two 40 minute English lessons in term one. A representative sample of five students was chosen for mid-study interviews and as a focus for lesson observation. Mid-study interviews were conducted at the end of term one with the five selected students and also with the class teacher. In the second term the intervention occurred in a further three Society and Environment lessons and one English lesson.

End of study interviews with the teacher and selected students were conducted. A post-study questionnaire was also completed by all students in the class to determine the students' perception of the effects of integrating *Inspiration* on their organisational and problem-solving skills.

Results of the research

Analysis of the pre-study questionnaire responses revealed that while most students used computers for school work outside of class time, there were only just over one-third who had had experience with *Inspiration*. Most students were familiar with the concept of brainstorm and they stated they usually organised their information for assignments. Nearly 94% of students also considered they achieved well in assignment work and that they check their work. However, over one-third of the students found they had left something important out of assignments and that they did have some concerns about where to start with assignment work.

The intervention

The start of the study was delayed by two weeks due to an upgrade of the network and further problems with availability of computers occurred throughout the study. The class teacher believed that the main issues were network technical difficulties, limited access to library computers, limited time - due to length of lessons, and the requirements of the Society and Environment programme.

In accordance with the action-research method of therapeutic action, structured templates created to suit a specific purpose, were discussed and deemed appropriate to alleviate the problems of the limited time available on computers and also the specialised nature of the Society & Environment programme. As with many classes, there was a variation in the ability and application in the class of students involved in the study. The idea of providing a structure to allow students to

provided a structure to explore the different elements of this character's personality. See existing template *Story Web* and *Character Web* examples of student work in the following figure.

[illegible]

Term One 2023		Term Two 2023	
1	My goal is: Achieving		
1	Completion of Presentations		
2	Tuist Hill: History and Location	http://www.stirling.wa.gov.au/AboutOurCity/tuisthill.asp	
3	Tuist Hill: Climate and Settlement	http://www.stirling.wa.gov.au/AboutOurCity/tuisthill.asp	
4	Tuist Hill Mountain Respect Writing	Tuist Hill respect - Michael Baker	
5	Writing strategies	http://www.stirling.wa.gov.au/AboutOurCity/tuisthill.asp	
6	Herons and Map pins	Wanderlust	
7	Displacement and Disfranchisement 1901-1951: Geoffrey Zimung	A sentence and the video is called "Boy Soldiers"	
8	Bowel Pictures or Data	Flight Top to Visit Settlers College	
8	History as a Recycling bin	Applied from 2014 history lesson week 10 8, week 8	

In their English lessons the students used existing templates to deconstruct elements of their novels. The *Story Web* template provided images and structure to trigger responses for describing the setting, conflict, themes and characterisation for their novel. The *Character Web* allowed students to further analyse one of the main characters and

The teacher stated that “those who had prior experience on *Inspiration*, and the generally more organised students, seemed to be better equipped to produce a higher standard of work.” There was some developmental progress for all students, as each time they used *Inspiration* they became more efficient and were able to expand on their previous attempts. The teacher considered “even the really weak students who found it hard to put pen to paper produced more work using *Inspiration* than they would have using pen and paper.” A positive and unexpected aspect was that

Inspiration was considered by the teacher to be a "valuable instructional tool." Instruction was enhanced by the use of the digital projector, as the teacher considered that it enabled "the students to be walked through the various steps."

The post-study questionnaire asked students to comment on their experience with *Inspiration*; if it had helped in their English and Society and Environment subjects and what features they considered most helpful. Most of the students responded that they enjoyed using this software package, although there were nearly 20% of students who stated that they did not enjoy using *Inspiration* at all. Apart from the usual 5% of students who don't like using computers it is likely that these students had experienced difficulty in using the software and had not been able to access help at the time. *Inspiration* was considered 'a lot helpful' when connecting ideas, sorting information and planning for Society & Environment by nearly one-third of the students.

The features of links, pictures, colours, templates and the ability to save work were nominated as the most helpful features. Students stated that these features, helped them to organise their work creatively and then save it. Although nearly half of the students did not have problems with *Inspiration* some of the students found time constraints, familiarity and the lack of appropriate graphics a negative aspect.

APPLYING ANALYSIS OF DATA

Planning

In the post-study questionnaire a significant number of students stated that *Inspiration* had been very helpful in planning for the term and over half of the students stated that it had been of some benefit. In their interviews, the selected students all stated that *Inspiration* had been helpful in planning for the term using the Term Planner template. The teacher stated in her interview that *Inspiration* should be integrated into the curriculum "at the planning stage". When observing the lesson where the Term Planner template was used, the researcher noted all students completed their work. Clearly from analysis of the data in the post-study questionnaire, student interviews and teacher interview, *Inspiration* was of some benefit to the majority of students, in enhancing their planning skills for the term.

Understanding task requirements

The post-study questionnaire asked students to respond to questions asking if *Inspiration* had helped in the understanding of assignment requirements. A significant number of students indicated that *Inspiration* had been very helpful in understanding assignment requirements and over half stated that it had been of some benefit. When interviewed the teacher stated *Inspiration* was helpful for the students in "setting up their thought processes". A number of responses in the short answer section of the post-study questionnaire stated that *Inspiration* helped students in their understanding of assignments. Taking into account student

responses to the post-study questionnaire and the comments of the teacher, it is considered that *Inspiration* helped the majority of students, to some degree, in developing their understanding of assignment requirements.

Organising information

A significant number of students stated that *Inspiration* helped them to sort their information, with nearly one-third stating *Inspiration* had helped them a lot and two-thirds stated it had helped them to some degree which included those students who had not enjoyed using the software. When asked to write the best thing about *Inspiration* in the post-study questionnaire nearly one-third of the students used the word 'organise'.

In the student interviews three students stated that they liked to use *Inspiration* because it made their work neater and easier to organise. The teacher also commented on the value of *Inspiration* in developing the students' organisational skills. The teacher also thought the templates added structure to the students' work and stated that "all students, across the board, were better organised" after using the Report Format template. Taking into account the data collected in the questionnaire, student and teacher interviews and observation of lessons, it was considered that *Inspiration* helped the majority of students in enhancing their organization skills.

FACTORS AFFECTING THE RESULTS

Analysis of the data from the two questionnaires was conducted to compare response frequencies between responses for particular items and to compare responses of various groups of students. The chi squared (χ^2) test was used for all comparisons due to the nominal nature of the data and the small population sample. Each analysis was undertaken using two-way tables with χ^2 analysis with a 0.05 level of significance applied.

Gender difference

No significant differences were found between the genders in the use of computers for school-work at home or outside of class time at school. However, significant differences were found based on gender in the pre-study questionnaire when students were asked to indicate whether they liked to try out different software programs on computers ($\chi^2 = 11.903$, $df=3$, $p<0.05$). Overall the boys liked to try out different software more so than the girls.

90% of the students stated in the post-study questionnaire that, to varying degrees they found *Inspiration* easier to use with increased experience. The gender split to this response was even, although analysis of the pre-study questionnaire revealed boys liked to try out different software programs more than girls. Analysis of these data indicate that although boys tend to enjoy experimenting with technology more so than girls, both the boys and girls in this study found *Inspiration* easier to use with increased experience. This may indicate that the boys were accustomed to experimenting with software and the girls were motivated to

increase their level of expertise as *Inspiration* supported the assigned tasks. There was no significant difference based on gender concerning the helpfulness of *Inspiration* or if they enjoyed using it. It is interesting to note that in the interviews the girls tended to stress the helpfulness of the colours and pictures and the boys stated they found the pictures and the weblinks useful.

Attitude towards using the software

In analysis of the post-study questionnaire students were grouped according to their stated enjoyment of using *Inspiration*. Using the χ^2 test, significant differences were found with the perceived benefit of the software program to the development of organisation and information problem solving skills. Compared with students who did not enjoy using *Inspiration*, those who did, found it helpful in planning for S&E ($\chi^2 = 16.054$, $df=4$, $p<0.05$). Compared to students who did not enjoy *Inspiration*, those who did, found it helpful in organising their thoughts ($\chi^2 = 10.246$, $df=4$, $p<0.05$). From analysis of this data it can be asserted that those students who enjoyed using *Inspiration* generally found that it had been helpful in enhancing their planning and organisation skills.

ISSUES TO BE CONSIDERED

During the course of this study the accessibility of technology was one of the main issues to emerge. The value of *Inspiration* as an instructional tool was not anticipated prior to the study, however this was a positive aspect was stressed by the teacher during the study. The American content of this program was considered a negative aspect by some of the students in the study.

The technology

Accessibility of the technology was a major issue that emerged in this study as the start of the study was delayed due to technological problems with the network and access to computers with *Inspiration* depended on the library availability. The teacher found this frustrating as the curriculum programme had to be modified to suit the availability of computers, not the needs of the students. The students also found this frustrating, stating that "having to wait to go to the library was a problem." Access to computers is an important aspect of successful integration of ICT as it allows students to work at their own pace and can lead to increased motivation.

INSPIRATION AS AN INSTRUCTIONAL TOOL

When interviewed, the teacher noted the value of *Inspiration* as an instructional tool, especially when used in conjunction with the digital projector. The flexibility of the functions of *Inspiration* allows for use of existing templates and also the creation of specialised templates and can therefore cater for specific needs of both teachers and students. Existing or specifically created templates can then be used to brainstorm ideas or demonstrate cause and effects, relationships, hierarchies or other concepts across all subject areas. Using *Inspiration* on the digital projector allows the colours, pictures and links to add weight to an argument or emphasis a point perhaps more clearly than on a white or black board. Students' input can be included, modified or featured in different colours or shapes while class discussion is taking place.

Graphics on Inspiration

When interviewed, the teacher stated that students who were 'visual learners' were motivated to use *Inspiration* and a number of students stated that pictures were a helpful feature, assisting them to remember information. In the final questionnaire, however, four students stated that finding good pictures was a problem with this software. *Inspiration* is an American produced software program and some of the pictures were specifically tailored for American students. An example of this is in the Social Studies symbol pallet which covers mostly American historical figures or images. As *Inspiration* is a software tool which promotes the use of graphics as a main feature, it was disappointing to note that many of the images were suitable for American students only.

RECOMMENDATIONS

To successfully implement the use of *Inspiration* to support a Middle School curriculum it is important that consideration be given to students' access to computer technology which can, in turn, affect motivation. Martinez (2001, p. 3) quotes studies which state that factors such as: enjoyment, motivation, frustration and independence affect learning performance. Roschelle, et al. (2000, p. 78) list the key factors which affect student use and the successful implementation of ICT into the school curriculum as: 1) location and number of computers, 2) teacher expertise, 3) teacher philosophy and 4) school culture. These key factors can be addressed in a teaching and learning environment that has the characteristics of Middle Schooling.

The ethos of Middle Schooling is based on research of early adolescent development and learning. Some of the characteristics of Middle Schooling include flexible timetabling, shared resources, an integrated, relevant curriculum, and an emphasis on problem solving (Anderman & Midgley, 1998). These characteristics are congruent with the implementation of graphic organiser software into the curriculum and could also alleviate some of the problems of access to available technology, and allow for students to be motivated to use the software.

The researcher would recommend that graphic organiser software should include a more universal coverage of symbols and graphics. The software could include a variety of symbol pallets for different countries and age groups, where the symbols and graphics cater to specific cultural needs.

An online version of the software would alleviate some of the problems associated with limited access. Schools could pay a fee based on student and staff population or on an annual basis and the program could be placed on the school's website and accessed by a logon name and password. Students and teachers could then access this software from any computer at school or at home, which may then allow *Inspiration* to be used from any location in the school or home as and when needed.

CONCLUSION

This study has found that a Middle Schooling context provides suitable conditions for the integration of graphic organiser software to facilitate the successful implementation of strategies and constructs to enhance students' organisational and problem-solving skills. However, in addition this study found that *Inspiration* is a valuable and flexible instructional tool, which provides a variety of structures to stimulate class discussion and guide and involve students in the process of planning, organising and monitoring their own learning. It is then likely, that in this context, the use of such software will support students in developing strong organisational and problem-solving skills.

REFERENCES

- Anderman, L.H., & Midgley, C. (1998). *Motivation and middle school students*. ERIC Digest, ED421281.
- Dyck, B.A. (2002, April). Hovering. Teaching the adolescent brain how to think. *Middle Ground*, 18-22.
- Harnett, A. (1991). *Preparation of middle school teachers*. ERIC Digest 90-1. ED335356.
- Hannafin, R. D. (1999, Winter). Can teacher attitudes about learning be changed? *Journal of Computers in Teacher Education*, 15(2), 7-13.
- Inspiration Software Inc. (1998). *Classroom Ideas Using Inspiration*
- Martinez, M. (2001). Key design considerations for personalized learning on the web. *Educational Technology & Society*, 4 (1), 1-19.
- National Institute for Mental Health (2002). *Teenage brain: A work in progress*. Retrieved September 9 2002, from <http://www.nimh.nih.gov/publicat/teenbrain.cfm>
- Roschelle, J.M., Pea, R., Hoadley, C., Gordin, D., & Means, B. (2000). Changing how and what children learn in school with computer-based technologies. *The future of children. Children and computer technology* 10 (2) 77-100.
- Rosenfield, J. (2002, April). Surfing the brainwaves. *Middle Ground*, 10-16.
- Stringer, B. (1998). Middle schooling in a P-12 context. *IARTYV Seminar Series*, 79, 16-17.
- Wormeli, R. (2002, April). One teacher to another: Beating a path to the brain. *Middle Ground*, 23-25.

Getting access to the "underground" – insights into children's identities online

Abstract

Increasingly computers in primary schools are being used to support the interactions and learning of students online. Gaining access to online spaces gives students new ways of interacting, not possible in a face-to-face setting. For example, interacting through online environments allows students to interact more informally with each other and with other participants than is generally permitted in the classroom. In this paper we examine the ways students in a grade 5/6 class interacted with each other and the researcher/teacher, using a guest book, email account and a chatroom on a class web site and later, using Messenger. The paper examines the informal online interactions of the students and how these interactions impacted on the student and teacher/student interactions in the classroom. Students appropriated online names and used the anonymity of the Internet to their advantage. The study concludes with a set of recommendations for the use of interactive technologies in the primary school classroom.

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BIOGRAPHY

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INTRODUCTION

Young people in industrialised countries are getting access to the Internet at increasing rates. For example, in 2002, 67% of young people aged 5 to 18 used the internet at home, at school or elsewhere in the UK (National Statistics Online, 2004). In the US, during 2002, 65% of children used the Internet at home, school and from other locations. This figure was up from 41% in 2000 (The Corporation for Public Broadcasting, 2002). This level of use is similar in Australia. One recent study reveals that during or outside of school hours, in the 12 months prior to April 2003, 64% of all children between the ages of 5 and 14 had accessed the Internet (Australian Bureau of Statistics, 2003). Increasingly schools are equipping classrooms and dedicated labs with networked computers, and while this is improving young people's access to the Internet, it is also giving rise to a host of new issues related to school education.

In having access to the Internet, young people are able to interact online with each other and with other participants, making it essential for educators to have an understanding of what these students are doing when they go online. There has been some negative information on the impact of adolescents' use of the Internet as a communication tool. Currently, debates are raging about the implications of access to chatrooms for young people (see for example www.chatdanger.com). Much of the information is sensationalist and does not provide for a balanced understanding of important issues that arise when young people

interact online. For example, these discussions often do not consider the benefits of students' participation in online interactions, but seem only to highlight the dangers of such interactions. However, the research literature does indicate that there are benefits in such interactions, as discussed below.

One benefit is that learning outside of the classroom can be enhanced. Students are able to interact with each other and with their teachers at any time and in any place. These online interactions with each other and with their teachers are often different to those in a face-to-face setting in the classroom (McNeil, Bernard, Robin, & Miller, 2000). One difference suggested by McNeil et al. is that due to the mediating nature of the Internet, many interactions tend to be more informal than in the classroom. The definition of informal interactions as used in this paper is that they are spontaneous and unplanned. They are interactive, and have the characteristics of informal learning as described by Kraut et al. (1990): "with all the participants in the communication being able to respond to what they perceive to be the current state of affairs, including the communication up until that point and their perception of the other participants' reactions to it" (Kraut, Fish, Root, & Chalfonte, 1990). Consequently online interactions can be a powerful way of contributing to students' informal learning. Online informal interactions also have a high degree of social content to help participants create the kind of personal communication that is usually reserved for face-to-face contact (Bloch, 2002). Therefore online interactions are of benefit to students in both allowing freer and more spontaneous interactions to occur and in promoting social interactions.