

Week 5 Self-learning materials

Academic writing-organization1

There is no fixed, one-fits-all template for structuring academic work. Different types of assignment have different overall structures.

For example:

Essays typically consist of an introduction, body and conclusion;

Research papers usually have the following main sections: abstract, introduction, literature review, methods, results, discussion and conclusion.

Abstract

Abstract usually includes the following contents:

- Topic Specification: WHAT the research is about?
- Purpose Statement: WHY the research was done?
- Methodology and Data: HOW the research was done?

If you are writing an informative abstract, it should also include

- Background Information: WHAT question the research is answering or what gap in previous research the present research fills?
- Results/Findings: WHAT the research found?
- Implications/Conclusions: WHY the results are significant, WHAT the implications are?

Examples

Example from education "What happens in different contexts and how to do learner autonomy better"

What about: Chongqing University, as one of the experimental universities in China, has implemented computer-assisted language learning to support and practice learner autonomy since 2003. But in 2006, as a Visiting Fellow from Chongqing at the University of Leeds, the author noted pedagogical differences in promoting learner autonomy of language teaching between the two universities.

Why done: A comparative study focusing on learner autonomy is likely to provide

useful insights into the progression of autonomy in language learning.

How done: Accordingly, a comparative study through questionnaires, interviews, and learning contexts observations was designed to examine closely the similarities and differences between the two groups in learner autonomy and, more specifically, to find out the main barriers to the development of learner autonomy in Chongqing University.

What found: Research findings indicate more autonomous learning practices and constructive interactions among learners, and more support from teachers and the university should be given.

Example from Engineering

This research developed a hybrid heating process which can sinter yttria zirconia ceramics to nearly 100% of their theoretical density in a short time. Following optimisation of the process, a detailed comparison of the properties and microstructures of conventionally sintered and microwave sintered samples of 3 mol% and 8 mol% yttria zirconia was performed. Identical thermal profiles were used for both types of heating. For both materials, microwave heating was found to enhance the densification processes which occur during constant rate heating.	focus of research methodology overall results for both materials after microwave sintering
The 3 mol% yttria zirconia material exhibited a shift in the grain size/density relationship which favours densification, resulting in higher density samples with smaller grain sizes at densities below 96% of theoretical density. At higher densities, significant grain growth occurs. For the 8 mol% yttria zirconia material, the grain size 1 density relationship remained unchanged. Differences in the response of the two materials are attributed to the differences in the activation energy for grain growth, and in grain boundary mobility. Modulus of rupture and toughness of both microwave and conventionally sintered samples were similar. Results for constant rate heating for microwaves and conventional heating (temperature is increasing at a constant rate - in this case either 20°C or 200°C per minute - to a set maximum temp, then heating stopped)	results for 3 mol% results for 8 mol% discussion of results
Following isothermal heating at 1300°C, microwave heated samples were found to be significantly more dense than conventionally heated samples. The lower temperature also restricted grain growth once densification was approaching completion. results for constant temperature heating for microwaves and conventional heating (samples held at a set temp - 1300°C - for set period)	comparison between microwave and conventional heating/sintering
When aged at 1500°C, grain growth in the 3 mol% yttria-zirconia was also found to be accelerated in the electromagnetic field, with exaggerated grain growth being observed. The larger grain size was reflected in an increase in transformability of the tetragonal phase. Grain growth in 8 mol% yttria zirconia was not significantly affected by microwave heating over the time period studied.	results for 3 mol% at 1500°C results for 8 mol% at 1500°C
These findings have significant implications for the commercial application of microwave sintering. The best way to take advantage of the benefits of microwave sintering for yttria zirconia ceramics would appear to be incorporation of dwell periods at temperatures in the 1200 - 1350°C range in the sintering program.	significance of results

Introduction

Introduction generally includes background, purpose, theoretical foundation, significance and hypotheses or research questions.

- ✓ Background: Tell what is behind the problem and why it is needed.
- ✓ Purpose: tell what you hope to do with the study.
- ✓ Theoretical Foundation/Conceptual Foundation: Summarize the previous research in the field and prepare for your research by showing a gap in the previous research.

It could also include

- ✓ Significance: Why is your study important? What impact could it make? Who might be affected? What change in society or perceptions or actions might come from this study?
- ✓ Scope: How wide ranging are the results?
- ✓ Hypotheses or Research Questions: It is good to give these in the first Chapter and repeat again in Chapter III and then the answer or respond to them in Chapter IV. Generally hypotheses are used in Quantitative studies and research questions in Qualitative studies. In a mixed model, you may have both.

Examples

Example from education "What happens in different contexts and how to do learner autonomy better"

Background: Over the last 20 years, as the focus of research in language teaching and learning has shifted from teachers and teaching to learners and learning (Northeast Conference 1990; Nunan 1995; Tutor 1996), the importance of learner autonomy has been clearly recognized by Chinese researchers, and a growing body of theoretical and practical research in China has explored possible methods for promoting this objective (Zou and Hu 2009). However, few studies discuss the patterns of language education in China in relation to those in non-Chinese contexts. In 2003, Chongqing University (CU), as one of the experimental universities in China, started a reform of English teaching and learning in the context of computer assisted

language learning (CALL) by establishing the self-access centre (SAC), developing the English learning databank and constructing the network course platform to support and practice learner autonomy (Zou 2006; Yu and Zou 2009). In 2006, as a Visiting Fellow from Chongqing at the University of Leeds (UL), the author noted differences in the pedagogy of language teaching between the two universities. At Leeds, the pedagogy was more informal, and the opportunities for collaboration and interaction provided by the new technologies were taken up in ways which seemed to assist more the development of learner autonomy.

Significance: Although the first-year students at Chongqing University in China (FSCUC) and the international students taking the remedial English course at the Language Centre of the University of Leeds in the UK (ISULB) operate in different contexts and there are quite a lot of differences between the groups and in the groups, they have similar objectives in English learning, and a comparative study focusing on learner autonomy should provide useful insights into the progression of autonomy in their language learning.

Purpose: In view of these, the author designed the study to examine more closely their similarities and differences in the teaching/learning process and, more specifically, to understand how pedagogical practices promoting learner autonomy have potential for Chinese contexts.

Example from Biology

Although studies have shown that diet has an important influence on a mammal's overall biology (e.g. McNab 1983), little is known about the feeding ecology of many Australian species. One species, the yellow-bellied glider (*Petaurus australis*), which weighs up to approximately 700g, is the largest of the arthropod and exudate-feeding marsupial gliders (see Smith & Lee 1984). It has a widespread but patchy distribution in eastern Australia and is characterized by low population densities (Henry & Craig 1984, Kavanagh 1984). Relatively little research has been centred on the feeding behaviour of this species because of difficulty in its detection and capture (Craig & Belcher 1980).

One study (Wakefield, 1970) concluded that while yellow-bellied gliders obtain sap from the 'V'-shaped incisions they make in the trunks of various species of eucalypt arthropods comprise the bulk of their diet. This conclusion, however, was based on limited feeding observations and the irregular occurrence of these 'sap-site' trees.

Other studies conducted analyses on faecal samples from north Queensland and Victoria respectively (Smith and Russell, 1982; Henry and Craig, 1984; and Craig, 1985) to determine feeding behaviour. These studies found the presence of arthropods, eucalypt sap, nectar and honeydew. However, as insect and plant exudates are almost totally digested and leave little trace in the faeces other indicators must be used to infer their use (Smith & Russell 1982). Bark, for example, is used as an indicator of eucalypt sap. Faecal analysis, therefore, does not allow a precise determination of the relative importance of each of the separate dietary items.

Qualitative observations of feeding behaviour in gliders have also been carried out (Henry and Craig, 1984; Craig, 1985; Kavanagh and Rohan-Jones, 1982; and Kavanagh, 1987a,b). In these studies each observation is scored equal, regardless of duration, thus these data indicate only the presence or absence of food items in the diet, not their relative use. A study employing the use of timed (i.e. quantitative) feeding observations is necessary to give a better resolution of the species' dietary requirements. This study was aimed at achieving this by addressing the following question: are different food resources exploited in different proportions throughout the year?

establishing the field

summarising previous research

main point about previous research in this area

findings of one study using limited observations

other studies using faecal samples to infer feeding behaviour

Other studies assessed the presence of food items in the diet, not the differential proportions of each food item in the diet.

identification of the gap

aims of this research

Literature review

Literature review should demonstrate that you have examined critically a great deal of relevant research concerning your project, including both the studies that support your basic ideas and those that refute them, both the current studies and journal articles within the last two or three years and some older once.

It should give research, which utilizes the same design or methodology you will be using. For example, if you are using a survey, try to show how similar studies utilized surveys, what to look for, how they are designed, validated, found reliable and finally how they were interpreted.

Example literature review from education

What happens in different contexts and how to do learner autonomy better

The literature on learner autonomy, though wide-reaching, has not delivered a

consensus on the meaning and implications of the term. Scholars interpret autonomy in different ways, giving particular attention to different aspects at different times. They regard learner autonomy respectively as a capacity to take charge of one's own learning (Holec 1981; Benson 1997); as a situation in which learners are responsible for the decisions concerned with their learning, and for the implementation of those decisions (Dickinson 1987); as an approach to educational practice (Boud 1988); as a process in which students independently complete learning tasks and activities without aid from a teacher (Higgs 1988); as individuals participating metacognitively, motivationally, and behaviorally in their own learning processes (Zimmerman 1989); or as informed use of resources in context (Palfreyman 2003). Hence autonomy is seen as a multidimensional construct that takes different forms for different individuals, and for the same individual in different contexts (Benson 2001).

Autonomous learning is not only an individual and gradual process of self-awareness which involves the sharing of control between teachers and learners, while offering learners extended opportunities to take responsibility for their own learning (Boud 1988), but also a gradual increase in relation to awareness of learning contexts (Hauck 2005). Although students will not reach the same level of autonomy, helping them to raise awareness, to reflect on their own learning experiences, to share such reflections with others and to gain understanding of the factors influencing the learning processes are important for the development of autonomous learning competence and positive attitudes towards learner autonomy.

In addition, learners achieve high levels of self-efficacy and self-motivation in supportive learning environments (Bereiter and Scardamalia 1989) such as CALL, because computer-based activities can create an atmosphere of engagement (Opalka 2001) and bring an additional dimension to classroom learning (Shin 2006). As is stated by Benson (2001), autonomy can be fostered by CALL, since it not only presents opportunities for learners to study independently of a teacher, but also offers opportunities for students to direct their own learning and to collaborate and interact with other learners via computer-mediated communication, although computer support does not necessarily ensure learner autonomy.

Furthermore in order for self-regulated learning to come to fruition, students need not only to be able to choose and personalize what tools and content are available, but also to have access to the necessary scaffolding to support their learning (McLoughlin and Lee 2010). Even the most experienced or independent students need some counseling in terms of what to study, where the materials are, which one/ones can be copied, and which cannot (Kaspar 2000). However, the traditional view of teachers as the principal source of educational content and control is in tension with the objectives of autonomous learning and with the learning opportunities provided by the new technologies. Hence, initiating students' greater autonomy in learning depends on teachers' undertaking a pedagogical shift, and requires interaction and communication between teachers and students (Yang and Fang 2008; Ding 2009). If one part is lacking, the goal is difficult to achieve. Thus, it is unreasonable to expect teachers to foster autonomy in their students if they themselves do not fully understand what is involved in, and required by, autonomous learning; and if they themselves are unable to incorporate these reflective and self-management processes into their own teaching (Little 1999).

Consequently, learners who have a sense of responsibility to take charge of their own learning but are not offered appropriate learning contexts or who are offered such an environment but lack sufficient support from teachers may fall short in achieving autonomy. Therefore, the comparative study takes into account the interpretations in the literature by constructing a questionnaire addressing these factors which is linked to small group interviews and learning contexts observations, which expects to reveal and illuminate issues related to learner autonomy and bring useful information for the current College English teaching reform in China.

Methodology

The methods chapter tells your reader 'how' you carried out the research that was needed to answer your research questions. The methods section/chapter functions to explain:

- ✓ WHEN the study was carried out

- ✓ WHERE the study was carried out
- ✓ WHAT materials, techniques, samples, data, approaches, theoretical frameworks were used in the study
- ✓ HOW you intend to analyze the data. Include how you will collect the data, what you will do with it when you get it.
- ✓ HOW the study was carried out
- ✓ WHAT procedures were used.

Examples

Example from education "What happens in different contexts and how to do learner autonomy better"

Hypothesis and research questions

Although the ISULB take their EFL courses within an English-speaking community, and the FSCUC in a Chinese-language context, both courses and students have similar objectives of improving English language competencies. However, there may be different orientations in student beliefs, in the classroom pedagogies and in the use of learning supports, which are likely to influence the teaching, and perhaps affect the students' approaches to, and the management of, their learning. Based on the hypothesis, the author addresses the following research questions:

- (1) What are the similarities and differences between student groups in the two universities in autonomous learning awareness and autonomous learning practice in CALL contexts?
- (2) What are the main barriers to the development of learner autonomy in CU?
- (3) What should be done to promote greater learner autonomy in College English teaching in CU?

Subjects

Two groups of students participated in this investigation: the FSCUC and the ISULB. One hundred and ten copies of a questionnaire were given to the FSCUC and 95 fully completed ones were returned, a response rate of 86%. In the ISULB, of the 50 questionnaires administered, 42 were returned fully completed, a response rate of

84%.

Instruments

The author used questionnaires as the main data-gathering instrument, though learning contexts observations and follow-up interviews were also undertaken to note pedagogical aspects and to gather more information on students' perspectives. The first section of the questionnaire gathered student information on age, gender, years of English learning, and self-rated English proficiency. The second section involved two parts in relation to learner autonomy. Part 1 is based on Holec's definition (1981) of autonomy aimed at understanding students' autonomous learning awareness. The subjects were asked to rate each of the five statements on a fivepoint Likert ranging from strongly disagree to strongly agree. Part 2 is mostly influenced by Benson's view (2001) that autonomy is fostered by different types of CALL activities. In this part, students were requested to rate 11 statements to demonstrate how they learned English in CALL contexts, and to what extent. Again ratings were placed on a five-point scale ranging from never to always.

Data collection

In designing the questionnaire, the author discussed the items with several English teachers and undertook a small pilot study among 15 students. The author informed the participants of the purpose of the experiment, asked them for the feedback on the questionnaire design and then made appropriate modifications. The English teachers administered the questionnaire in class, as part of the 10-minute break, and instructed the students to provide responses to all of the statements based on an honest assessment of their language learning experiences. With the purpose of better understanding the reasons for some of the significant differences between the two student groups, group interviews with 20 (in CU) and 7 (in the UL) randomly selected students and learning contexts observations were carried out respectively in the two universities. The data were collected by taking notes.

Data analysis

The data from the questionnaire returns were tabulated and analyzed in SPSS Version 17.0. Mean values, standard deviation and frequencies were used to summarize the

distribution of the variables. For testing comparisons between the ratings of the FSCUC and the ISULB for statistical significance, a two-sample Kolmogorov-Smirnov (KS) Test was applied given the relatively small sample sizes. Since the ratings fall on an ordered classification scale the (non-parametric) KS Test is the most appropriate procedure, which tests for statistical significance of differences in the frequency distributions of the ratings of the two student groups. The * and ** symbols are used to identify significance at the conventional 5% and 1% levels. Ratings greater than 4.0 were considered High, 4.0 to 3.5 Medium/High, 3.4 to 3.0 Medium, and those below 3.0, Low.

Example From Biology

Qualitative observations of feeding behaviour in gliders have also been carried out (Henry and Craig, 1984; Craig, 1985; Kavanagh and Rohan-Jones, 1982; and Kavanagh, 1987a,b). In these studies each observation is scored equal, regardless of duration, thus these data indicate only the presence or absence of food items in the diet, not their relative use. A study employing the use of timed (i.e. quantitative) feeding observations is necessary to give a better resolution of the species' dietary requirements. This study was aimed at achieving this by addressing the following question: are different food resources exploited in different proportions throughout the year?

This is the final paragraph in the lit review/introduction. Notice how it outlines the objectives of study after presenting a rationale and how it sets up the following methods section.

2.2 METHODS.

This study was conducted at Waratah Creek (37°01'S, 149°23'E), in the Coolangabra State Forest, approximately 20km southeast of Bombala, New South Wales (see Fig.2-1.). The study area contained six species of eucalypt (Eucalyptus radiata, E. viminalis, E. fastigata, E. obliqua, E. ovata, E. cypellocarpa). See Chapters 6 and 7 and Kavanagh (1984) for further details.

where the study was carried out
characteristics of study area

Thirteen field trips were conducted at the following times:- 9-18 January, 2-12 April, 13- 18 May, 22 June- 1 July, 30 August- 3 September, 28 October November, 3-9 December 1984; 2-8 February, 15-24 April, 8-14 July, 2-8 September 1985; 5-17 January and 23 June- 5 July 1986. Gliders were trapped in the study area and ear-tagged with coloured reflective tape to enable assessment of the number of individuals observed during each field trip (see Chapter 6).

when the study was carried out

Yellow-bellied gliders were located with a 12V 100W spotlight. Initial location was greatly facilitated by their extraordinary vocal behaviour (Kavanagh & Rohan-Jones 1982). After locating a glider, it was followed for as long as possible (up to 3hr in 1984 but often for an entire night in 1985 and 1986; see Chapter 4) and observed with a 55W 'red' spotlight and a pair of binoculars. All feeding activities were timed to the nearest 1/2 min and recorded on tape. Observations commenced at dusk (when the gliders left their dens) and continued until approximately 0300h unless followed for an entire night. During each field trip except December 1984, at least one observation period was conducted throughout the night.

general comments about how the study was carried out

2.2.1. Feeding Behaviour.

A total of 122.4 hr was spent observing feeding by yellow-bellied gliders. The following feeding behaviours were identified on the basis of the spotlighting observations. Daytime observations of the substrate at which gliders were observed foraging were made in order to confirm the identity of the food types being ingested.

This is the first of two sections that detail how the study was carried out. Notice that the foottypes referred to in this section relate to the foodtypes identified in the

Eucalypt sap feeding:- gliders were observed clinging to the trunks of eucalypts and licking at the 'V'-shaped incisions they had made into the bark. Licking was interspersed with relatively short bouts of bark gouging to extend the incisions or create new ones.

This and the following paragraphs provide details about the specific methodology used with each foodtype.

Honeydew feeding:- gliders were presumed to be harvesting honeydew when engaged in branch and leaf-licking activities (Smith 1982a). Honeydew is the substance excreted by sap-sucking insects and, as found in the study by Smith (1982a), was produced at Bombala by coverless psyllids concealed under the bark of eucalypts and by scale insects present on the smaller branches and leaves of eucalypts. Scale insects were clearly seen with binoculars and were present on the leaves occasionally discarded by gliders when leaf-licking. Trees containing psyllids were uncommon and could be distinguished by the blackening of the branches (owing to a mould growing on the bark) under which the psyllids were living. One blackened branch collected from a *E. cypellocarpa* regularly used for brach-licking showed that these insects were common under the bark.

honeydew from insects under shedding bark and on leaves and small branches

Arthropod feeding:- gliders were observed to harvest arthropods by peeling back eucalypt bark and by searching through (gleaning) clumps of foliage. Bark arthropods were harvested in three different ways; by peeling back the bark being shed by the tree and consuming any exposed arthropods (Craig 1985, Kavanagh 1987a), by searching through and breaking open the bark ribbons which had accumulated in the forks of *E. viminalis* and by shredding the rough bark of *E. fastigata* in search of beetle larvae (Kavanagh 1987a).

arthropods from under shedding bark

Manna feeding:- This behaviour consisted of biting and licking the small branches and leaves of eucalypts (Kavanagh 1987a). Manna is the crystalline sap which forms at sites of insect damage on leaves and branches (Smith 1982a). Leaves and small branches were often discarded during feeding and examination of these showed the remains of manna.

manna from branches and leaves

Nectar feeding:- gliders were observed climbing amongst the canopy of eucalypts and drawing clumps of flowers toward the mouth so that these could be licked.

nectar from flowers

2 2.2. Indices of Food Availability .

this section details the methods used to assess food availability

Owing to the large home range of these gliders (34-88 ha; Chapter 7) and the complexity of the forest habitat, it was only possible to collect indices of food availability at regular intervals. Sap flow measurements were made during each trip, and this forms the basis of Chapter 3.

sap

Within 100ha of the forest, a grid with 100m intervals had been laid out for a previous study (see Kavanagh 1984). Within this area, 150 tagged trees (out of the 250 used by Kavanagh 1984, 1987a) were visited during each sample period between February 1985 and July 1986, and scored for the number of flowers present and the amount of bark being shed. The invertebrates harvested by gliders at other localities were predominantly those that live beneath the smooth bark of eucalypts (Henry & Craig 1984, Craig 1985, Goldingay pers. obs.). These arthropods become available to gliders only when the smooth bark is being shed. Gliders also harvest honeydew produced by psyllid nymphs which live under this bark (Henry & Craig 1984, Goldingay pers. obs.). The availability of this food resource (i.e. arthropods and honeydew) is therefore determined primarily by the bark-shedding pattern of the eucalypts.

abundance of flowers and bark shed.

rationale for assessing bark shed

To assess the change in the abundance of shedding bark, each marked tree was given a score (0 = 0-10%, 1 = 10-30%, 2 = 30-50%, 3 = 50-70%, 4 = 70-100%) based on the proportion of 2m sections of smooth bark on the trunk and branches which had peeling bark present. This index was averaged for each species to give an abundance index. Flower abundance was estimated by counting the number of flowers in a recognizable canopy unit and multiplying this by the number of such units in the entire canopy (Kavanagh 1984, 1987a). Kavanagh (1987a) provides data on this for this site for May 1981-January 1985.

methodology for assessing bark shed abundance

The *E. cypellocarpa* producing honeydew could be readily identified because of the blackening of branches caused by a mould growing on the bark in the sugary exudate (see above). Five such trees (identified in 1984) were examined during each trip between April 1985 and July 1986 and the number of blackened branches on these trees was scored as an index of honeydew abundance. Eleven *E. cypellocarpa* used for flower- and bark-shed scores were also examined for blackened branches during each of these field trips.

honeydew abundance