UNIVERSITY OF WOLLONGONG AUSTRALIA

Thesis writing

Sample literature reviews

BIOLOGY EXAMPLE

Example: literature review for a thesis	
Although studies have shown that diet has an important influence on a mammal's overall biology (eg 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 characterised 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).	*main point about previous research in this area*
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.	*findings of one study using limited observations*
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.	*other methods used to infer feeding behaviour*
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 (ie 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?	*limitations of other studies* *identification of a gap in knowledge* *aims of this research*

ENGINEERING EXAMPLE

Example: literature review for a thesis	
One of the chief advantages of microwave heating which is commonly cited is the rapid heating rates which can be achieved, and the resultant reduction in grain size of the sintered compact. Other techniques for rapid heating of ceramics have also been studied. Heating rates	*specific focus*
The effects of heating rate on the densification of alumina - titanium carbide composites using a resistance heated dilatometer, for example, was investigated by Borom and Lee,[89] ranging from 20 to 400^{0}C/min were used. It was found that up to approximately 1500^{0}C the diffusion kinetics were such that the final density was independent of the heating rate. However, the density of samples heated to temperatures in the 1600 to 1950^{0}C was a function of the heating rate, with significant increases in density being achieved, even though holding times at the maximum temperature were reduced to as little as 2 minutes. This was largely attributed to the suppression of chemical reactions which normally impede sintering of alumina when carbon is present. Final microstructures were comparable to those achieved by commercial hot-pressing techniques.	*identifies one heating technique and summarises its results*
Zone sintering equipment inductively heated by a radio frequency generator has also been used to rapidly heat alumina and BaTi03 ceramics.[90, 91, 92] In both materials, a microstructure was obtained with a finer grain size than was achievable for samples of the same density prepared by conventional sintering. Raymond and Lesley suggest that this occurs because the lattice diffusion coefficient is raised and the surface diffusion coefficients lowered at higher temperatures. These favour densification rather than grain growth. ...	*identifies another technique and summarises its results*
An investigation into the use of rapid plasma sintering for alumina rods was conducted by Young and McPherson who[93] found extremely high shrinkage rates in the alumina. They claim that shrinkage rates of 1 to 4%ls cannot be explained by isothermal diffusion mechanisms alone, but that localised temperature gradients created during rapid heating act to enhance mass transport. Johnson[94] argues that isothermal sintering models can account for the shrinkage observed during plasma sintering, and that temperature gradients would have no significant effect on densification. Young and McPherson[95] counter these arguments by pointing out errors in the assumptions about grain growth in Johnson's analysis, and clarifying the details of the heat transfer path, which they find Johnson oversimplified.	*identifies a 3rd heating technique and main result* *competing interpretations of results*
"Rate controlled sintering"(or "RCS")[97, 98, 99] is another technique used in the rapid heating of ceramics. This technique has produced samples with small grain size and high density. In this approach	*identifies a 4th heating technique and summarises its results*
The rapid firing technique has also been assessed for use in industrial heating of whiteware. Poppi and Vincenzini[100] found that there were significant gains in energy efficiency and production rates as well as improved material properties achieved by rapid heating, as long as appropriate measures were taken to ensure that temperature gradients within the material were minimised.	*chronological order of techniques presented combines with clear narrative of gradual improvement*

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