8 July 2003

Jill Hennessey
Director, policy and Development
Department of Gaming and Racing
323 Castlereagh Street
Sydney

Dear Ms. Hennessey,

Re: Auckland UniServices Ltd (2003) *"Assessment of the research on technical modifications to electronic gaming machines in NSW, Australia: Final Report"*.

Thank you for forwarding a copy of the above Report prepared by the Auckland UniServices (AU) on the methodology and conclusions contained in the University of Sydney Gambling Research Unit's (USGRU) study commissioned by the Gaming Industry Operators Group for comment.

Overall, we were pleased to see that the general conclusions of the independent evaluation report conducted by the Auckland UniServices confirmed that the extensive literature review conducted by the USGRU accurately reflected the published literature on the topic of harm minimisation, and that the quality of the research is "technically sound", "at an intermediate level of excellence" and "has generated new ideas, interpretations or critical findings" (p. 37). It is worth noting that the independent group of AU reviewers congratulate both the USGRU and the Centre for International Economics (CIE) for its initiative and contributions in pursuing this important line of research in naturalistic settings, and its recognition of the time and budgetary pressures that imposed difficult limitations. It is particularly noteworthy that the independent reviewers did no offer any significant criticism of the fundamental methodology or research design employed by the USGRU.

We also note that the conclusions of the independent AU Report both in the executive summary and its key findings are essentially in keeping with the conclusions of the USGRU Report. The differences in conclusions largely reflect differences in emphasis or minor differences in interpretation.

The independent AU Report offers three conclusions, as follows (p. 6):
1. The reel spin modification does not appear, at this stage, to be an effective harm minimisation strategy.
2. The reduction in maximum bet size shows strong potential as a machine-based modification to minimise harm associated with problem gambling
3. The reconfiguration of bill acceptors could be a potentially effective harm minimisation strategy if it was to be implemented together with other considerations such as proximity to ATMs. In isolation, the modification of bill acceptors itself does not appear supported for its effectiveness in harm minimisation.

The independent AU Report contains a consensus that there was no evidence from the USGRU's Report to support the notion that the introduction of the reel spin modification would represent an effective harm minimisation strategy. Accordingly, the independent AU Report supports the accuracy and reliability of the interpretation of data reached by the USGRU in this regard.

There is also general agreement that there was evidence from the USGRU Report that suggested that reducing the maximum bet would be a potentially helpful harm minimisation strategy. There is minimal difference between the two Reports with regard to the interpretation of findings related to maximum bet. It is important to underscore the fact that the discrepancies are related to the extent to which introducing this change would minimise harm, not whether the evidence suggests that it would have some effect.

The authors of the independent AU Report conclude that there are inconsistencies between the results of various studies conducted and the general conclusions reached, but we would dispute this claim. It is argued that the "inconsistencies" are one of emphasis. That is, given the limitations clearly delineated in the research cited in the reports (e.g. lack of representativeness of the sample, the opportunity of players to switch to an unmodified machine, the effect of observation on play), one can conclude that "it appears likely" that this modification would minimise harm.

This is essentially the same statement made by the authors of the independent AU report that the modification shows "strong potential". We argue that it is more appropriate to be cautious in interpreting the results of a set of related studies containing inherent limitations, and to note that any individual change to a machine feature is likely to have a relatively small impact on the complex phenomenon of problem gambling within the community. Since only 7% of problem gamblers were observed to play more than $1 per wager, it is likely that this modification would be helpful to those 7%, but not the 93% who do not use this machine feature. *We do not disagree with the notion of the introduction of this modification on the basis of the available research. However, we are*

more cautious than the independent AU reviewers in advancing the claim that this will make a significant impact, and suggest that there may be a range of other machine modifications and other strategies with greater harm minimisation potential. We urge the Department of Gaming and Racing to support further systematic research into clarifying this issue.

There is some disagreement about the conclusions related to the bill acceptor modification. The USGRU Report concluded that there was no evidence to support the introduction of this modification. The independent AU Report essentially concurred that reducing the bill acceptors to accept only $20 or less was not supported by the research However, on the basis of comments by pathological gamblers in focus groups (Study 4 of the USGRU Report), the AU reviewers conclude that coupled with other modifications this modification may be helpful. We believe that this latter comment is speculative and not necessarily supported by data. We disagree with the independent reviewers about the relative weight that should be given to findings from the focus group study.

It is emphasised that focus groups are essentially helpful in generating hypotheses to be tested in larger samples using quantitative research designs. The focus group methodology relies on retrospective report of what factors *might* have reduced gambling problems for a sample of problem gamblers who were currently in treatment. It is well known that peoples' reports of behaviour and their actual behaviours are often poorly correlated. This is particularly true if the reports of behaviour are retrospective. Therefore, self-report data should be regarded as being inherently unreliable in this context. Hence, to give the same weight to findings from the focus group study involving less than 30 participants (Study 4) as to the behavioural study (Study 2) involving more than 700 participants is inappropriate and reflects a lack of scientific rigour.

Moreover, in NSW there are legal matters related to the placement of ATM machines that were in place at the time the original research was conducted. Hence, the combination of this legislation and changing the bill acceptors has been 'tested' and found not to influence play. *Therefore, we reiterate our original conclusion that there is no evidence to suggest that the bill acceptor modification would result in a reduction of harm associated with problem gambling.*

Although there are some misunderstandings, inaccuracies and misinterpretations in the review report, these do not influence our general support of its findings with the caveats described above. Nonetheless, for the sake of thoroughness, we append a detailed response (Appendix 1) to some of the minor criticisms that were made in that report to the various methodologies, analyses and interpretations.

We congratulate the Department of Gaming and Racing in pursuing an independent evaluation of the USGRU study. In the context of the study being commissioned by the gaming industry, an independent review of the research methodology and interpretation of data is essential in establishing the objectivity, reliability and validity of the research undertaken. The independent AU Report has achieved this. We trust that the Department of Gaming and Racing, having commissioned this independent AU Report, will now feel

confident in the results of the original USGRU Report prepared by the Gambling Research Unit at the University of Sydney and feel able to act on its recommendations.

We would, of course, be happy to provide any further information that you require.

With kind regards

Professor Alex Blaszczynski   Dr. Louise Sharpe
Professor in Psychology   **Senior Lecturer in Psychology**

Dr. Michael Walker
Senior Lecturer in Psychology

Appendix 1

Additional comments on the Auckland UniServices Ltd (2003) *"Assessment of the research on technical modifications to electronic gaming machines in NSW, Australia: Final Report"*.

The authors of the University of Sydney's Gambling Research Unit (USGRU) considered it appropriate to offer comment, clarification and correction on several points that were raised in the Auckland UniServices (AU) independent evaluation report. The following response is not intended to be an exhaustive coverage of all the points contained in the AU report.

Literature review
The AU states that the USGRU report "*...seems to be a reasonable representation of the available literature'.* It is noted that the AU conducted its own extensive and comprehensive literature review and were unable to locate any articles of relevance to the terms of reference of the USGRU study. In essence, it reached the identical conclusions of the USGRU report that there is a paucity of information and research on the effects of changes to gaming machine features. Consequently, we argue that the literature we conducted is in fact more than a *reasonable representation.*

The AU includes a non-critical summary of several articles that became available after the release of the USGRU report. In this context, the AU refer to the Schellinck and Schrans (2002) report as being of relevance to both the USGRU and CIE reports but fail to adequately explain how and in what way.

Inconsistency in defining problem gambling

The critique notes (p.23) that in the early part of the report, a SOGS score of 5+ defines a problem gambler whereas in the later part of the report SOGS 5-9 defines a problem gambler at risk and SOGS 10+ defines a problem gambler.

The reviewers have located a difference in terminology. However, the impact of this difference is minimal. The reason for this is that consistently throughout the report problem gambling refers to scores of 5+.

The intent of the division of SOGS 5+ into two components (SOGS 5-9, SOGS 10+) was to add some enable a clearer picture of the impact of the modifications on problem gamblers. It was unfortunate that the group SOGS 5-9 was labelled 'at risk'. A better label may have been low scoring problem gamblers. Then SOGS 10+ might have been labelled 'serious problem gamblers'. The term 'serious problem gamblers' was actually used in the report to refer to the SOGS 10+ group.

The impact of the labelling is minimal. In Table 12, analysis of time spent playing the machines is in terms of SOGS 5+ and the conclusion is that there is "... no evidence that problem gamblers avoided modified machines more than did non-problem gamblers."

Figure 3 shows the time spent playing machines as a function of SOGS scores. The division into 5-9 and 10+ categories clarifies the relationship.

In table 13, the players are subdivided by SOGS scores into 0, 1-4, 5-9. There were no 10+ scores. The text refers to "problem gambler(s) with a SOGS score of ten or more" and to "participants with problems (SOGS 5-9)".

On p.76, the term 'problem gamblers' refers to SOGS 5+ and the group with SOGS 10+ are referred to as 'serious problem gamblers'.

The AU critique notes (p.23) that the change in criteria may lead to major misinterpretation because expenditure was affected but problem gamblers could not be examined because of the small sample of SOGS 10+.

In fact the major problem was not sample size (18 serious problem gamblers and 86 'at risk' of serious problem gambling would have been sufficient) but the fact that the majority of players did not play the Pirates machines at all. As mentioned in the report, the 18 serious problem gamblers did not play the Pirates machines at all. The report refers to the 'limited evidence' available. No statistically sound conclusion can be drawn but this is not due to the labelling or categorisation, but to the small number of individuals who played the Pirates machines.

Comments on the statistical analysis (p. 49ff)

(1)   The four outcome variables are "very strongly related". Therefore presenting results for each "*grossly over emphasises the findings.*"

Comment
The high inter-correlation is recognised in the report (p.69). The report also states that cash-in is the most stable measure. Presenting results for all three measures provides clarification in the view of this researcher. Without all three measures, it may be thought that one component ma have behaved differently to another. The claim that there is gross over emphasis appears to lack foundation.

(2)   There is no indication of response rate.

Comment
Response rate is irrelevant to the expenditure analysis since the data relates to all players using the machines. Response rate refers only to the individually based time data. All players who entered Studies 1 and 2 were included.

(3)   There is no mention of how missing data was handled.

Comment
The way in which missing data was handled is described in paragraph 1 on p.70.

(4)   "The study design is a factorial one but the analysis compares each modification combination with the "standard". It is seen as a very poor analysis."

Comment
One wonders what analysis would be more powerful than the comparison of a modification combination with an independent standard. ANOVA tests the effects within the four group design. Multiple linear regression tests the decrements in cash from standard to modified machines. The analyses were advised by statisticians. The judgement that this is "a very poor analysis" seems personal and unsupported. Certainly, the claim that the analysis is "seen" as very poor is presented without any statistical analysis, poor or otherwise.

(5)   "Take" is not presented correctly.

Comment
The review suggests that a large win is not presented in Table 8 and that this contradicts the definition. This claim is not true. The large win is shown in the table and the value without the large win is shown in parentheses.   "Take" is the least stable figure calculated. It is for this reason that the emphasis is placed on "cash-in"(see p.69).

(6)   "Cash in - cash out" compared to "Cash in" alone

Comment
The reviewer states that, "As the only difference in these measures is created by the random nature of the machine either this is a chance occurrence or the random nature of the machines was altered by the modifications." The reviewer fails to understand that "cash in - cash out" depends upon the number of games played on average. If a player plays the machine for sufficiently long, "cash out" will be zero and "cash in - cash out" will be the same as "cash in". If the player enters money and then cashes out without playing, then "cash in - cash out" will be zero. Thus, "cash in -cash out" is a measure of persistence in playing (as stated in the report p.72). The comparison of "cash in - cash out" for standard and modified machines therefore provides a measure of the attractiveness of the modifications to players. Since "cash in - cash out" is higher for standard machines than for modified machines, we can conclude that players persisted in playing standard machines for longer than modified machines and that the standard machines were therefore more attractive than the modified machines.

The reviewer also suggests that the analysis was done with four venues in the one case and three in the other (as if this might account for the differences rather than the persistence in play referred to above). This suggestion is completely erroneous and without foundation.

(7)   Time on machine is dismissed as showing no difference between problem and non-problem gamblers.

Comment

Section 9.12 states the expectation that, "problem gamblers will spend relatively more time on the standard machines compared to non-problem gamblers. Since problem gamblers spent a much smaller amount of time on the standard machines (108 minutes) than non-problem players (397, 849 minutes) but comparable time on the modified machines, there was no point in testing the hypothesis statistically: the H_0 could not be rejected on the data available.

(8)   No measure of variability for the data in section 9.3.

Comment
We agree that this is an oversight.

In summary, the critical analyses offered by the AU independent reviewers are of such a nature that they do not undermine the methodology employed by the USGRU, or the accuracy and validity of the overall conclusions reached on the effectiveness of the specified changes to design of gaming machines as a harm minimisation strategy.