





```

, '          7DF          7DFWLF          %RDUG 0HWULf          'LYLVLQRV RI 5H'
$VVHVW WKH FXUUHQW LPSDFW RIRWVXGEGWQVLYDROVXPHQW
UHVLGHQWLDO DQG QRQUHVLGHQWLDODQGEGWYHQQHRIRI FXUUHQW LQYROYHPPHQW DQG
LQYROYHPPHQW E\ -XQH 15 DQDQDQVWLGHQWLDO VWXGHQW QHHGV 'DWD ZLOO EH
6( D 'HYHORS D FRPSUHKHQVLYH SODQVHGGWRHGHYHORS QHZ SURJUDPV 166(VXUYH\
SURJUDPV WR VWUHQJWKHQ FR FRPSOHWHG 6SULQJ 1HZ 'LUHFWRU RI
FXUULFXOXP DQG H[WUD FXUULFXOXPV RQVWLGHQWVHWR DQDO\]H GDWD
FXUULFXOXP RIIHULQJV E\ )DOO6XPPHU )DOO XVHG WR GHYHORS SURJUDPV

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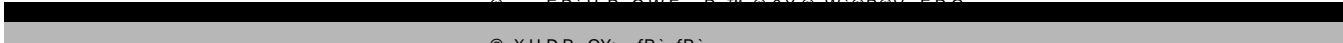






, ' 7DF 7DFWLF %RDUG 0HWULF 'LYLVLRQV RI 5H'  
 'HYHORS DQG H|HFXWH WKH UHF RPPHOCCHURQVGRHQQWILDO IL 5MVLWCBMIDOOIUWLVPH (QUROOPHQW 6HUYLEFHV 6WXGH  
 ), D 5HWHQWLRQ 7DVN )RUFH UHVLGHQWLDO UHWHQWLRQ ILURP SUHW ERXVEHIDDO\$IIDLUV  
 ,QFUHDVH ILUVW WLPH 5KXOGWQRPHLDHILUQVHQVHIDDOIDOO WR VSULJQ  
 UHWHQWLRQ IURP )DOO WR 6SHULHQWRBQ< E\  
 ,PSOHPHQW 1HZ 5HFUXLWPHQW 3ODQW RHLVFCJHWH HDOQVWXGH HDOQVFRXQMUVWVWVLPD(QURROOPHQW 6HUYLEFHV  
 PD[LPL]H SLSHOLQHV IXOO WLPH SOXV WUDQVHUVXSHHQWIDOBVLSHQWDOO )DOO &HQVXV  
 7KHQ SHUFHQW LQFUHDVH 5HDE&HGGVLDVLRQDQVHHDWV  
 ), E 7RWDO KHDGFRXQW VWXGHQW UHVLGHQWLDO  
 )DOO &HQVXV  
 7RWDO VWXGHQW FUHGLW KRUV QRQ  
 UHVLGHQWLDO XQGHUJUDGDWH  
 7RWDO VWXGHQW FUHGLW KRUV JUDGDWH  
 7RWDO VWXGHQW f  
 &RPSOHWH LPSOHPHQWDWLRQ RI WKH 'XDO &UHGLW SURJUDPH 5HDEHFRXQW VWXGHQWIDOBVLSHQWDOO (ERXROOPHQW  
 IRU WRWDO VWXGHQWV LQWDOHQWV UHVLGHQW 6BOYIDBO &HQVXV  
 ,PSOHPHQW SDWKZDV IRU 7RWDO KHDGFRXQW VWXGHQW UHVLGHQWLDO  
 ), F )DOO &HQVXV  
 &XUUHQWV\ KDYH VFKRRO 7RWDO VWXGHQW FUHGLW KRUV QRQ  
 ,QFUHDVH WR SDUWQHUVVFKRROWLDO)DOO GHUJUDGDWH  
 0DWULFXODWH RI VWXGHQWV LQ )DOO IURP  
 WKH VWXGHQWV  
 ,PSOHPHQW ORZHU GLVFRXQW UDWH 'XDO &UHGLW SURJUDPH 5HDEHFRXQW VWXGHQWIDOBVLSHQWDOO @ 50`U WV  
 ), G IRU UHVLHZ RI XSSHU FODVVHV GLVFRXQW UDWH  
 7W  
 7W

W



@ XUDR OY\* fP` fP`  
 R  
 G pP`

@





7DF 7DFWLF %RDUG 0HWULF 'LYLVLRQV RI 5H'

7R DOORZ PRUH SURJUDPV WR EHQFRYHIDG HWB\ DQVRHO WRHWDO QRWPEU IRD GRXJQVWV VSDGHWLFHSILGHWLWLD BFKQRORJ  
 PRGDOLW\ ,PSURYH WKH IDFXOWDQV\ HXBO&DQJUDH(SURJUDPV)DPOH&HQVROQLQH HD6KUYLFHV  
 77 D &RXUVHV WKURXJK WUDLQLQJ UHURXUFHV DQG HGXFDWLRQ RWDO VWXGHQW FUHGLW KRXUV QRQ  
 HQVXUH FRQVLVWHQW XVH XVH SHILJHHVWRH\ DQPSLOHV FR&GRVHHV\SHQW\KDBH XOGHUVJUDGXDWH  
 WR DVVLVW LQ KRZ WR GR WKLQJV HWF 7RWDO VWXGHQW FUHGLW KRXUV JUDGXDWH  
 \$FDGHPLF 6D  
 ,PSOHPHQW D SKDVHG DSSURDF 3KDVH 'DWD \*RYHUQDQFH 2SKDVH\W\QJ 0DUJLQ \$QVXOVXWLRQDO (IHFWLYHQHV  
 ) D DQG 77 J ,PSOHPHQW DGDSWDEOH VW\DHILQQRSDQDQ LQVSHQVPHQWV\KQRDQBX \$KUYLFHV  
 77 E D GDWD ODNH DQG DQDOWLR SHULW\KIDQWRUR ED SKDDB  
 SURLGH WUDLQLQJ ZLWK WUDLQ WKH WUDLQHU PRGHV  
 EXLOG UHSRUWV  
 \$GGUHVV LGHQWLILHG WHFKQLF DQGHFWDQFK GRVLOW\GYHOM WRSDF\H\SWDEOH  
 HYROYLQJ QHHGV IRU WKH IXWXUR QYHQWLRQDO PDUJLQV H J QR HQG RI OLIH  
 77 F



HOBB 1755 EBL HB 100 00 D HEDT 0M  
 HO@1 BH YEG b



